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(54) DRYING CONTROL METHOD AND APPARATUS, LAUNDRY TREATMENT DEVICE, AND STORAGE MEDIUM

(57) The present disclosure provides a drying control method, a drying control apparatus, a laundry treatment device, and a storage medium are provided. The method includes: receiving a start instruction for a drying program; and controlling a switching apparatus to be turned on or off to allow air to inflow from all the air guide holes of an inner tub or from an inner ring air guide hole of the inner tub. According to the present disclosure, a new air duct structure is designed. The structure includes an outer ring air duct and an inner ring air duct, and inflowing of air from each of the outer ring air duct and the inner ring air duct or only from the inner ring air duct is controlled. When the air inflows from each of the outer ring air duct and the inner ring air duct, the air is more uniformly filled in the tub. In this way, uniformity of drying a load is increased while reducing a phenomenon that the load is blown onto a filter screen and gets stuck. When the air inflows only from the inner ring air duct, air penetration is better, and drying of a load that is wrapped in a middle part of the inner tub and not easily blown can be accelerated. The flexible control of the air inflowing from different parts can dry the middle part of the inner tub in a targeted manner and avoid a case where a load close to a tub wall is over-dried while the load in the middle part is not fully dried.

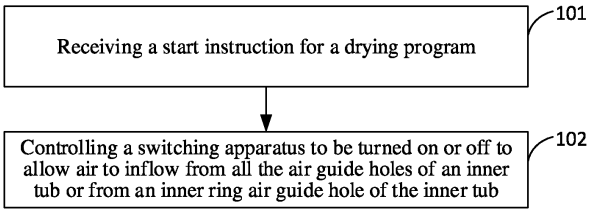

FIG. 4

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Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application claims priority to Chinese Patent Application No. 202210712536.0, titled "DRYING CONTROL METHOD AND APPARATUS, LAUNDRY TREATMENT DEVICE, AND STORAGE MEDIUM", and filed with China National Intellectual Property Administration on June 22, 2022, the entire disclosure of which is incorporated herein by reference. The present application also claims priority to Chinese Patent Application No. 202211620498.2, titled "DRYING CONTROL METHOD AND APPARATUS, LAUNDRY TREATMENT DEVICE, AND STORAGE MEDIUM", and filed with China National Intellectual Property Administration on December 15, 2022, the entire disclosure of which is incorporated herein by reference.

FIELD

[0002] This disclosure belongs to the field of electrical equipment technologies, and more particularly, relates to a drying control method and a drying control apparatus, a laundry treatment device, and a storage medium.

BACKGROUND

[0003] Currently, laundry treatment devices with a drying function such as a washer dryer combo and a laundry dryer have become common household electrical equipment. When a user needs to dry laundry, wet laundry is placed in an inner tub. And after starting a drying program, air is introduced into the inner tub from a rear cover of the laundry treatment device, thereby drying the laundry in the inner tub.

[0004] In the related art, the air introduced into the inner tub from the rear cover is uniform. However, in an actual drying scene, different pieces of laundry are dried to different degrees within a same drying time period. Moreover, some large pieces of laundry tend to clump together and cannot be shaken apart, and a piece of laundry wrapped in the middle part is not prone to be fully dried. The uniform air inflowing can cause some pieces of laundry to be over-dried or not fully dried.

SUMMARY

[0005] According to the present disclosure, a drying control method, a drying control apparatus, a laundry treatment device, and a storage medium are provided. By controlling a switching apparatus to be turned on or turned off, inflowing of air from all the air guide holes of an inner tub or only from an inner ring air guide hole of the inner tub is realized. The flexible control of the air inflowing from different parts can dry a middle part of the inner tub in a targeted manner and avoid a case where a load close to a tub wall is over-dried while a load in the middle part is not fully dried.

[0006] According to embodiments in a first aspect of the present disclosure, a drying control method is provided. The method comprises: receiving a start instruction for a drying program; and controlling a switching apparatus to be turned on or turned off to allow air to inflow from all air guide holes of an inner tub or from an inner ring air guide hole of the inner tub.

[0007] In some embodiments of the present disclosure, the controlling the switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub comprises: controlling the switching apparatus to be turned on to allow the air to inflow into the inner tub from all the air guide holes of the inner tub; or controlling the switching apparatus to be turned off to allow the air to inflow into the inner tub from the inner ring air guide hole of the inner tub.

[0008] In some embodiments of the present disclosure, the switching apparatus comprises a first baffle and a second baffle; and the controlling the switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub comprises: controlling at least one of the first baffle or the second baffle to be opened to allow the air to inflow into the inner tub from all the air guide holes of the inner tub; or controlling each of the first baffle and the second baffle to be closed to allow the air to inflow into the inner tub from the inner ring air guide hole of the inner tub.

[0009] In some embodiments of the present disclosure, the method further comprises: controlling, during a drying process, the switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub alternately.

[0010] In some embodiments of the present disclosure, the allowing the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub alternately comprises: controlling the air to inflow from all the air guide holes of the inner tub for a first predetermined duration; controlling, in response to determining that the first predetermined duration has been reached, the air to inflow from the inner ring air guide hole of the inner tub for a second predetermined duration; and returning, in response to determining that the second predetermined duration has been reached, to the operation of said controlling the air to inflow from all the air guide holes of the inner tub for the first predetermined duration, to perform the loop.

[0011] In some embodiments of the present disclosure, the first predetermined duration is greater than the second predetermined duration.

[0012] In some embodiments of the present disclosure, the method further comprises: receiving the start instruction for the drying program, and controlling the air to inflow from all the air guide holes of the inner tub; determining that a predetermined alternating air inflow-

ing condition has been reached, and performing the operation of said controlling the switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub alternately.

[0013] In some embodiments of the present disclosure, the determining that the predetermined alternating air inflowing condition has been reached comprises: determining, in response to a current drying duration reaching a third predetermined duration, that the predetermined alternating air inflowing condition has been reached; or obtaining current load humidity, and determining, when the load humidity is smaller than a predetermined threshold, that the predetermined alternating air inflowing condition has been reached.

[0014] In some embodiments of the present disclosure, the method further comprises: during a drying process, controlling the current drying program to end in response to determining that a predetermined drying judgment condition has been reached.

[0015] According to embodiments in a second aspect of the present disclosure, a drying control method is provided. The method comprises: controlling, during a drying process, air to inflow into an inner tub in a first air inflowing mode and/or in a second air inflowing mode, the first air inflowing mode being to allow air to inflow from all air guide holes, and the second air inflowing mode being to allow air to inflow from an inner ring air guide hole.

[0016] In some embodiments of the present disclosure, the controlling, during the drying process, the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode comprises: receiving a start instruction for a drying program, and controlling the air to inflow into the inner tub in the first air inflowing mode in response to determining that a first predetermined air inflowing condition has been reached; and/or receiving a start instruction for a drying program, and controlling the air to inflow into the inner tub in the second air inflowing mode in response to determining that a second predetermined air inflowing condition has been reached.

[0017] In some embodiments of the present disclosure, the controlling, during the drying process, the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode comprises: receiving a start instruction for a drying program, and controlling the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode alternately in response to determining that a predetermined alternating air inflowing condition has been reached.

[0018] In some embodiments of the present disclosure, the controlling the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode comprises: controlling a switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub.

[0019] In some embodiments of the present disclosure, the switching apparatus comprises a first baffle and a second baffle; and the controlling the switching apparatus to be turned on comprises: controlling at least one of the first baffle or the second baffle to be opened; and the controlling the switching apparatus to be turned off comprises: controlling each of the first baffle and the second baffle to be closed.

[0020] In some embodiments of the present disclosure, the controlling the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately comprises: controlling the air to inflow into the inner tub in the first air inflowing mode for a first predetermined duration; controlling, in response to determining that the first predetermined duration has been reached, the air to inflow into the inner tub in the second air inflowing mode for a second predetermined duration, the first predetermined duration being longer than the second predetermined duration; and returning, in response to determining that the second predetermined duration has been reached, to the operation of said controlling the air to inflow into the inner tub in the first air inflowing mode for the first predetermined duration, to perform the loop.

[0021] In some embodiments of the present disclosure, the determining that the predetermined alternating air inflowing condition has been reached comprises: determining, in response to a current drying duration reaching a third predetermined duration, that the predetermined alternating air inflowing condition has been reached; or obtaining current load humidity, and determining, when the load humidity is smaller than a predetermined threshold, that the predetermined alternating air inflowing condition has been reached.

[0022] According to embodiments of a third aspect of the present disclosure, a drying control method is provided. The method comprises: during a drying process, controlling, based on load information, air to inflow into an inner tub in a first air inflowing mode and/or in a second air inflowing mode, the first air inflowing mode being to allow air to inflow from all air guide holes, and the second air inflowing mode being to allow air to inflow from an inner ring air guide hole.

[0023] In some embodiments of the present disclosure, the controlling, based on the load information, the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode comprises: controlling, based on load humidity, the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately.

[0024] In some embodiments of the present disclosure, the controlling, based on the load humidity, the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately comprises: controlling, when the load humidity is greater than or equal to a predetermined threshold, air to inflow into the inner tub in the first air inflowing mode; and controlling, when the load humidity is smaller than the

predetermined threshold, the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately.

[0025] According to embodiments of a fourth aspect of the present disclosure, a drying control apparatus is provided. The drying control apparatus comprises a laundry treatment chamber, an air guide hole, and an air inflowing control module. The air guide hole is in communication with the laundry treatment chamber. The air guide hole comprises an inner ring air guide hole. The air inflowing control module is connected to a switching apparatus. The air inflowing control module is configured to control the switching apparatus to normally open the inner ring air guide hole during the drying process.

[0026] In some embodiments of the present disclosure, the air guide hole further comprises an outer ring air guide hole; and the air inflowing control module is further configured to control the switching apparatus to open or close the outer ring air guide hole.

[0027] In some embodiments of the present disclosure, the air inflowing control module is further configured to control, based on load information, the switching apparatus to open or close the outer ring air guide hole.

[0028] In some embodiments of the present disclosure, the air inflowing control module is further configured to control, based on load humidity, the switching apparatus to open or close the outer ring air guide hole alternately.

[0029] According to embodiments of a fifth aspect of the present disclosure, a laundry treatment device is provided. The device comprises a memory, a processor, and a computer program stored in the memory and executable by the processor. The processor, when executing the computer program, implements the method according to any one of the first to third aspects as described above.

[0030] According to embodiments of a sixth aspect of the present disclosure, a computer-readable storage medium is provided. The medium has a computer program stored thereon. The computer program, when executed by a processor, implements the method according to any one of the first to third aspects as described above.

[0031] The technical solutions according to the embodiments of the present disclosure have at least the following technical effects or advantages.

[0032] In the embodiments of the present disclosure, the laundry treatment device is provided with two air inflowing modes to flexibly control the air inflowing from different parts and improve drying efficiency. The laundry treatment device is provided with a switching apparatus, and the inflowing of the air from all the air guide holes of the inner tub or only from the inner ring air guide hole of the inner tub is controlled by turning on or off the switching apparatus. When the air inflows from all the air guide holes of the inner tub, and the air inflowing into the inner tub is more uniformly filled in the tub. In this way, uniformity of drying a load is increased while reducing a phenomenon that the load is blown onto a filter screen and gets stuck. When the air inflows only from the inner ring air guide hole of the inner tub, penetration of the concentrated air is better, and drying of a load that is wrapped in a middle part of the inner tub and not easily blown can be accelerated.

[0033] Further, by performing the two drying modes alternately, the flexible control of the air inflowing from different parts can be achieved, and the middle part of the inner tub can be blown and dried in a targeted manner. As a result, a total drying duration of the middle part during the entire drying process is longer than a total drying duration of a periphery region close to a tub wall. Thus, a case where the load close to the tub wall is over-dried while the load in the middle part is not fully dried is avoided.

[0034] Additional aspects and advantages of the embodiments of present disclosure will be provided at least in part in the following description, or will become apparent in part from the following description, or can be learned from the practice of the embodiments of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0035] Various other advantages and benefits will become apparent to those skilled in the art after reading the detailed description of preferred embodiments given below. The accompanying drawings are used for a purpose of illustrating the preferred embodiments only, rather than limiting the present disclosure. Moreover, throughout the drawings, same elements are denoted by same reference numerals.

FIG. 1 is a schematic view showing an air duct structure according to an embodiment of the present disclosure.

FIG. 2 is another schematic view showing another air duct structure according to an embodiment of the present disclosure.

FIG. 3 is a schematic view showing a structure of an interior of an inner tub of a laundry treatment device according to an embodiment of the present disclosure.

FIG. 4 is a flowchart showing a drying control method according to an embodiment of the present disclosure.

FIG. 5 is a schematic view showing each of a first baffle and a second baffle being opened according to an embodiment of the present disclosure.

FIG. 6 is a schematic view showing each of a first baffle and a second baffle being closed according to an embodiment of the present disclosure.

FIG. 7 is another flowchart showing a drying control method according to an embodiment of the present disclosure.

FIG. 8 is a structural schematic diagram showing a drying control apparatus according to an embodi-

ment of the present disclosure.

FIG. 9 is a structural schematic diagram showing a laundry treatment device according to an embodiment of the present disclosure.

FIG. 10 is a schematic diagram of a storage medium according to an embodiment of the present disclosure.

Meanings of numbers in the above drawings are as follows:

[0036] 1: rear cover, 2: inner rib, 3: outer ring air duct, 4: inner ring air duct, 5: first baffle, 6: second baffle, 7: first motor, 8: second motor, 9: inner tub, 10: rear plate, 11: air guide cap, 12: inner ring air guide hole, 13: outer ring air guide hole; 201: laundry treatment chamber, 202: air guide hole, 203: air inflowing control module, 204: switching apparatus.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0037] Exemplary implementations of the present disclosure will be described in detail below with reference to the accompanying drawings. Although the exemplary implementation of the present disclosure are illustrated in the accompanying drawings, it should be understood that the present disclosure may be embodied in various forms and should not be construed as limited to the embodiments described herein. Instead, these embodiments are provided for a thorough understanding of the present disclosure, and can fully convey the scope of the present disclosure to those skilled in the art.

[0038] It should be noted that, unless otherwise specified, technical terms or scientific terms used in the present disclosure should have the same meanings commonly understood by those skilled in the art of the present disclosure.

[0039] A drying control method, a drying control apparatus, a laundry treatment device, and a storage medium according to embodiments of the present disclosure will be described with reference to the accompanying drawings.

[0040] Currently, a laundry treatment device with a drying function such as a washer dryer combo and a laundry dryer usually dries a load in an inner tub by allowing air to inflow from a bottom of the inner tub into the inner tub. In the related art, only one air duct is provided, from which the air inflows into the inner tub through air guide holes at the bottom of the inner tub. The air guide holes are uniformly arranged at the bottom of the inner tub, and the air is uniformly supplied to the inner tub from various parts of the bottom of the inner tub. However, in an actual drying scene, different pieces of laundry with different thicknesses are dried to different degrees within a same drying duration. Moreover, some large pieces of laundry tend to clump together and cannot be shaken apart, and some pieces of laundry wrapped in the middle part is not prone to be fully dried. The uniform air inflowing can cause some pieces of laundry to be over-dried or not be fully dried.

[0041] Upon this account, according to an embodiment of the present disclosure, a drying control method is provided. FIG. 1 is a schematic view showing an air duct structure according to an embodiment of the present disclosure. In a laundry treatment device with a drying function, such as a washer dryer combo and a laundry dryer, air usually inflows from a rear cover into the inner tub to dry a load in the inner tub. According to the present disclosure, a new air duct structure is designed. As shown in FIG. 1, an inner rib 2 is provided in the rear cover 1, and the inner rib 2 divides an air duct in the rear cover 1 into an outer ring air duct 3 and an inner ring air duct 4. A switching apparatus is further mounted in the rear cover 1, and the switching apparatus is configured to open both the outer ring air duct 3 and the inner ring air duct 4, or only open the inner ring air duct 4. In an embodiment of the present disclosure, the switching apparatus can be provided in a form of a baffle, and switching of the above-mentioned air duct can be achieved by providing one baffle or two baffles. Two baffles are taken as an example in FIG. 1 for illustration, such as a first baffle 5 and a second baffle 6 shown in FIG. 1. The first baffle 5 and the second baffle 6 are configured to open both the outer ring air duct 3 and the inner ring air duct 4 or only open the inner ring air duct 4. Corresponding to the example of the two baffles shown in FIG. 1, as shown in FIG. 2, a first motor 7 and a second motor 8 are mounted on a back surface of the rear cover 1 (e.g., a rear surface of the rear cover 1 shown in FIG. 1). The first motor 7 is connected to the first baffle 5 and is configured to drive the first baffle 5 to be opened or closed. The second motor 8 is connected to the second baffle 6 and is configured to drive the second baffle 6 to be opened or closed. If only one baffle is provided in the rear cover 1, only one motor is correspondingly arranged on the rear surface of the rear cover 1.

[0042] As shown in FIG. 3, the laundry treatment device comprises an inner tub 9 and a rear plate 10. The inner tub 9 is mounted at the rear plate 10, and the rear cover 1 shown in FIG. 1 is mounted on a rear surface of the rear plate 10. An air guide cap 11 is provided at a bottom of the inner tub 9, and a plurality of air guide holes are defined at the air guide cap 11. The air guide hole located at the air guide cap 11 is referred to as inner ring air guide hole 12. An air guide hole located in an outer region of the air guide cap 11 is referred to as an outer ring air guide hole 13. As shown in FIG. 3, the air guide cap 11 has a circular shape. The air guide hole at the air guide cap 11 is the inner ring air guide hole 12, and an air guide hole in a region outside the air guide cap 11 is the outer ring air guide hole 13.

[0043] When each of the first baffle 5 and the second baffle 6 of the rear cover 1 is opened or only one of the first baffle 5 and the second baffle 6 of the rear cover 1 is opened, each of the outer ring air duct 3 and the inner ring air duct 4 of the rear cover 1 is opened. In this case, the

outer ring air duct 3 is in communication with the outer ring air guide hole 13, and the inner ring air duct 4 is in communication with the inner ring air guide hole 12. Air generated by the fan flows into the inner tub 9 along the outer ring air duct 3 and the outer ring air guide hole 13, and flows into the inner tub 9 along the inner ring air duct 4 and the inner ring air guide hole 12.

[0044] When each of the first baffle 5 and the second baffle 6 is closed, the outer ring air duct 3 of the rear cover 1 is closed, and the inner ring air duct 4 of the rear cover 1 is opened. In this case, the inner ring air duct 4 is in communication with the inner ring air guide hole 12, and air generated by the fan flows into the inner tub 9 along the inner ring air duct 4 and the inner ring air guide hole 12.

[0045] Based on the new rear cover structure described above, in a drying control method according to the embodiment of the present disclosure, a start instruction for a drying program is received, and air is controlled to inflow from all the air guide holes of an inner tub or only from an inner ring air guide hole 12 of the inner tub by controlling a switching apparatus to be turned on or off. In this way, based on an actual situation, overall drying or central concentrated drying can be selected during the drying process, or there are both an overall drying stage and a central concentrated drying stage during the entire drying process. The overall drying means that the air inflows into the inner tub 9 from both the outer ring air duct 3 and the inner ring air duct 4. Therefore, the air inflowing into the inner tub 9 can be uniformly filled in the tub. In this way, uniformity of drying a load is increased while reducing a phenomenon that the load is blown onto a filter screen and gets stuck by the filter screen. The central concentrated drying means that the air inflows into the inner tub 9 only from the inner ring air duct 4, and the rear cover 1 can concentrate the air to inflow into the inner tub 9 from a middle part. In this way, penetration of the concentrated air is better, and drying of a load that is wrapped in the middle part and not easily blown can be accelerated. The flexible control of the air inflowing from different parts can be achieved by setting the two air inflowing modes. It is possible to select whether to blow and dry the middle part of the inner tub 9 in a targeted manner based on the actual situation, to ensure the drying efficiency of the laundry in the middle part of the inner tub, and avoid the case where the load close to the tub wall is over-dried while the load in the middle part is not fully dried.

[0046] Based on the new air duct structure described above, according to an embodiment of the present disclosure, a drying control method is provided. Referring to FIG. 4, the method specifically comprises operations at steps 101 and 102.

[0047] At step 101, a start instruction for a drying program is received.

[0048] An execution subject of the embodiment of the present disclosure is a laundry treatment device with a drying function, such as a washer dryer combo and a laundry dryer, and the laundry treatment device has the new air duct structure described above.

[0049] When a user needs to dry laundry, to-be-dried laundry is placed in the inner tub 9 of the laundry treatment device, and the start instruction for the drying program is submitted through a control panel of the laundry treatment device, or the start instruction for the drying program is sent to the laundry treatment device through a client terminal corresponding to a laundry treatment device on a user terminal. The user terminal can be a device such as a mobile phone or a computer of the user.

[0050] The laundry treatment device receives he start instruction for the drying program, and then an entire drying process is controlled through an operation of step 102.

[0051] At step 102, a switching apparatus is controlled to be turned on or off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub.

[0052] Since the load rotates with the inner tub 9 during the drying process, the load tends to be entangled, resulting in the load entangled inside not being easy to be in contact with the air blown into the inner tub 9. As a result, the load inside is more difficult to be fully dried than the load entangled on a periphery. Therefore, as the drying process is executed, humidity of the load entangled on the periphery has a great difference from humidity of the load inside, and the humidity of the load on the periphery is lower than the humidity of the load inside.

[0053] Upon this account, in the embodiment of the present disclosure, the switching apparatus is controlled to be turned on or off during the drying process, to allow air to inflow from all the air guide holes of an inner tub or only from an inner ring air guide hole of the inner tub. As shown in FIG. 3, the inflowing of the air from all the air guide holes of the inner tub means that the air inflows from both the inner ring air guide hole 12 of the inner tub and the outer ring air guide hole 13 of the inner tub. With such air inflowing, the tub can be filled uniformly with the air, and the uniformity of drying the load is increased. When the air inflows only from the inner ring air guide hole 12, the air does not inflow from the outer ring air guide hole 13. In this case, the air inflows into the inner tub from the inner ring air guide hole 12, and the air is concentrated in the middle part of the inner tub. In this way, the penetration of the concentrated air is better, and the drying of the load that is wrapped in the middle part and not easily blown can be accelerated.

[0054] In the embodiments of the present disclosure, whether the air inflows from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub can be selected based on the received instructions for the drying program, and these two air inflowing modes are switched into by controlling the switching apparatus. As a result, the control of the air inflowing mode is more flexible and adapted to a spatial distribution of the load in

the inner tub, which can avoid the case where the load close to the tub wall is over-dried while the load in the middle part is not fully dried. In this way, a drying effect is improved.

[0055] In some embodiments, the switching apparatus is controlled to be turned on to allow the air to inflow from all the air guide holes of the inner tub to the inner tub. Specifically, the switching apparatus can comprise a first baffle and a second baffle. At least one of the first baffle or the second baffle is controlled to be opened to allow air to inflow into the inner tub from all the air guide holes of the inner tub.

[0056] As shown in FIG. 1, the switching apparatus is the first baffle 5 and the second baffle 6 at the rear cover 1 in FIG. 1. When each of the first baffle 5 and the second baffle 6 is opened or only one of the first baffle 5 and the second baffle 6 is opened, each of the outer ring air duct 3 and the inner ring air duct 4 in the rear cover 1 is opened. In this case, the outer ring air duct 3 is in communication with the outer ring air guide hole 13 shown in FIG. 3, and the inner ring air duct 4 is in communication with the inner ring air guide hole 12 in FIG. 3. Air generated by the fan flows into the inner tub 9 along the outer ring air duct 3 and the outer ring air guide hole 13, and flows into the inner tub 9 along the inner ring air duct 4 and the inner ring air guide hole 12.

[0057] In some other embodiments, the switching apparatus is controlled to be closed to allow the air to inflow into the inner tub from the inner ring air guide hole of the inner tub. When the switching apparatus comprises the first baffle and the second baffle, each of the first baffle and the second baffle can be controlled to be closed to allow the air to inflow into the inner tub from the inner ring air guide hole of the inner tub.

[0058] As shown in FIG. 1, when each of the first baffle 5 and the second baffle 6 is closed, the outer ring air duct 3 of the rear cover 1 is closed, and the inner ring air duct 4 is opened. In this case, the inner ring air duct 4 is in communication with the inner ring air guide hole 12 in FIG. 3, and air generated by the fan flows into the inner tub 9 along the inner ring air duct 4 and the inner ring air guide hole 12.

[0059] In the embodiments of the present disclosure, in order to enable dehumidification efficiency of the laundry at various positions in the inner tub to be more uniform during the drying process, the switching apparatus can be controlled to be turned on or off during the drying process to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub alternately.

[0060] Specifically, in the embodiment of the present disclosure, after the drying program is started, the laundry treatment device can periodically control the drying process. Each cycle can be divided into two stages. In a first stage, the air is controlled to inflow from all the air guide holes of the inner tub 9 to uniformly blow the air to the load on the periphery and the load entangled inside. In a second stage, the air is controlled to inflow only from the inner ring air guide hole 12 of the inner tub 9 to concentrate on blowing the air to the load entangled inside.

[0061] By periodically performing the air inflowing modes of the two stages described above, a total duration of blowing the load entangled inside during the entire drying process can be longer than a total duration of blowing the load on the periphery during the entire drying process. Thus, the case where the load close to the tub wall is over-dried while the load in the middle part is not fully dried is avoided.

[0062] If only one baffle is provided in the rear cover 1 of the laundry treatment device, a specific control process of the controlling the air to inflow from all the air guide holes during the periodic control process described above is to control the baffle of the rear cover 1 to be in a first state. In the first state, all the air guide holes are in communication with the inner tub 9, to allow the air to inflow into the inner tub 9 from all the air guide holes.

[0063] If the first baffle 5 and the second baffle 6 shown in FIG. 1 are provided at the rear cover 1 of the laundry treatment device, a specific control process of the controlling the air to inflow from all the air guide holes during the periodic control process described above is to control at least one of the first baffle 5 and the second baffle 6 of the rear cover 1 to be opened, to allow the air to inflow into the inner tub 9 from all the air guide holes of the inner tub 9.

[0064] In one implementation, the first motor 7 is controlled to drive the first baffle 5 at the rear cover 1 to be opened and the second baffle 6 to remain in the closed state, to enable the outer ring air duct 3 and the inner ring air duct 4 of the rear cover 1 to be opened.

[0065] In one implementation, the second motor 8 is controlled to drive the second baffle 6 at the rear cover 1 to be opened and the first baffle 5 to remain in the closed state, to enable the outer ring air duct 3 and the inner ring air duct 4 of the rear cover 1 to be opened.

[0066] In yet another implementation, the first motor 7 is controlled to drive the first baffle 5 at the rear cover 1 to be opened, and the second motor 8 is controlled to drive the second baffle 6 to be opened, to enable the outer ring air duct 3 and the inner ring air duct 4 of the rear cover 1 to be opened. The state in which each of the first baffle 5 and the second baffle 6 is opened is shown in FIG. 5.

[0067] The three implementations described above can all enable the outer ring air duct 3 and the inner ring air duct 4 to be opened. In this way, the outer ring air duct 3 is in communication with the outer ring air guide hole 13 at the bottom of the inner tub 9, and the air generated by the fan flows into the inner tub 9 through the outer ring air duct 3 and the outer ring air guide hole 13. The inner ring air duct 4 is in communication with the inner ring air guide hole 12, and the air generated by the fan flows into the inner tub 9 through the inner ring air duct 4 and the inner ring air guide hole 12. As shown in FIG. 3, the inflowing of the air into the inner tub 9 from the outer ring air guide hole 13 and the inner ring air guide hole 12 at the bottom of the

inner tub 9 can quickly reduce the humidity of the load close to the tub wall and the load located in the middle part of the inner tub 9. In this way, a drying rate is improved.

[0068] If only one baffle is provided at the rear cover 1 of the laundry treatment device, a specific control process of the controlling the air to inflow only from the inner ring air guide hole 12 in the periodic control process described above is to control the baffle at the rear cover 1 to be in a second state. In the second state, the outer ring air duct 3 is closed and the inner ring air duct 4 is opened, to allow the air to inflow into the inner tub 9 from the inner ring air guide hole 12 at the bottom of the inner tub 9.

[0069] If the first baffle 5 and the second baffle 6 shown in FIG. 1 are provided at the rear cover 1 of the laundry treatment device, a specific control process of the controlling the air to inflow only from the inner ring air guide hole 12 in the periodic control process described above is to control the first baffle 5 and the second baffle 6 of the rear cover 1 to be closed, to allow the air to inflow into the inner tub 9 from the inner ring air guide hole 12 at the bottom of the inner tub 9.

[0070] Specifically, the first motor 7 is controlled to drive the first baffle 5 at the rear cover 1 to be closed, and the second motor 8 is controlled to drive the second baffle 6 to be closed, to enable the outer ring air duct 3 of the rear cover 1 to be closed and the inner ring air duct 4 to be opened. The inner ring air duct 4 of the rear cover 1 is in communication with the inner ring air guide hole 12 at the bottom of the inner tub 9, and the air generated by the fan flows into the inner tub 9 through the inner ring air duct 4 and the inner ring air guide hole 12. The state in which each of the first baffle 5 and the second baffle 6 is closed is shown in FIG. 6.

[0071] With the air inflowing only from the inner ring air guide hole 12, an air volume is more concentrated, and the air penetration is better, to dry the load located in the middle part of the inner tub 9. In this way, the humidity of the load located in the middle part of the inner tub 9 can be quickly reduced. Meanwhile, no inflowing of the air from the outer ring air guide hole 13 helps to narrow the difference between the humidity of the load close to the tub wall and the humidity of the load in the middle part of the inner tub 9, to enable the humidity of the load in all the parts is more uniform. Moreover, when the humidity of the load close to the tub wall is low, no inflowing of the air from the outer ring air guide hole 13 can also avoid the case that the load close to the tub wall is over-dried.

[0072] In some embodiments of the present disclosure, a duration of the air inflowing from all the air guide holes of the inner tub 9 can be same as or different from the duration of the air inflowing only from the inner ring air guide hole 12 in a single cycle.

[0073] In some embodiments, the air can be controlled to inflow from all the air guide holes of the inner tub 9 for a first predetermined duration. In response to the first predetermined duration has been reached, the air is controlled to inflow from the inner ring air guide hole 12 of the inner tub 9 for a second predetermined duration. In response to the second predetermined duration has been reached, the air is controlled to inflow from all the air guide holes of the inner tub 9 for the first predetermined duration again, to perform the loop until the drying process ends.

[0074] The first predetermined duration can be 10 minutes, 15 minutes, 20 minutes, 25 minutes, etc., and the second predetermined duration can be 3 minutes, 5 minutes or 8 minutes, etc. The embodiment of the present disclosure may not impose special restrictions on specific values of the first predetermined duration and the second predetermined duration.

[0075] In some other embodiments, the first predetermined duration can be set to be longer than the second predetermined duration. A case where the total duration of the air inflowing from the inner ring air guide hole 12 is too much longer than the total duration of the air inflowing from all the air guide holes is avoided. Thus, the case where the load entangled inside has been dried while the load entangled on the periphery has not been fully dried can be reduced.

[0076] In yet some other embodiments of the present disclosure, considering that when the drying program is just started, the humidity of all the loads is very high, and the humidity difference between the load close to the tub wall and the load located in the middle part is not large. In this case, the operation of the controlling the two air inflowing modes alternately may not be performed first. Whereas, after the laundry treatment device receives the start instruction for the drying program, the air first inflows from all the air guide holes of the inner tub 9, to blow the air to both the load close to the tub wall and the load located in the middle part, which can quickly reduce the humidity of the loads at various positions and improve the drying efficiency.

[0077] When the drying program is just started, during the process of the controlling the air to inflow from all the air guide holes in the above-mentioned manner, whether the predetermined alternating air inflowing condition has been currently reached is determined by the laundry treatment device in real time, and in response to determining that the predetermined alternating air inflowing condition has been reached, the operation of the allowing the air to inflow from all the air guide holes of the inner tub 9 or only from the inner ring air guide hole 12 of the inner tub 9 alternately is then performed.

[0078] In some embodiments, the predetermined alternating air inflowing condition described above is controlled by the time period. Specifically, in response to a current drying duration reaching a third predetermined duration, it is determined that the predetermined alternating air inflowing condition has been reached. The current drying duration is a duration between a time moment when the laundry treatment device receives the start instruction for the drying program to allow the air to inflow into the inner tub and a current time moment.

[0079] When the laundry treatment device receives the start instruction for the drying program, a time count starts

from a time moment when the air is controlled to inflow from all the air guide holes. A duration of the time count is the current drying duration. Whether the duration of the time count reaches the third predetermined duration is determined. In response to the duration of the time count reaching the third predetermined duration, it is determined that the predetermined alternating air inflowing condition has been reached.

[0080] The third predetermined duration can be 20 minutes, 25 minutes, 30 minutes, 35 minutes, etc. The embodiment of the present disclosure does not impose special restrictions on the specific value of the third predetermined duration.

[0081] In still yet some other embodiments, the predetermined alternating air inflowing condition described above can also be controlled based on load humidity. In an embodiment of the present disclosure, a humidity sensor can be provided in the inner tub 9, and the humidity sensor is configured to detect current load humidity. The laundry treatment device receives the start instruction for the drying program, the air is controlled to inflow from all the air guide holes, and load humidity of the load in the tub is collected in real time by the humidity sensor to determine whether the load humidity is smaller than a predetermined threshold. When the load humidity is smaller than the predetermined threshold, it is determined that the predetermined alternating air inflowing condition has been reached.

[0082] The above-mentioned humidity sensor can be mounted at the inner wall of the inner tub 9. Alternatively, in another implementation, a lifting rib is provided at a side wall of the inner tub 9, and the humidity sensor can be mounted at the lifting rib.

[0083] The humidity sensor is mounted at the inner wall or the lifting rib of the inner tub 9, and the collected load humidity is humidity of the load entangled on the periphery. Detecting that the load humidity is smaller than the predetermined threshold indicates that the humidity of the load entangled on the periphery has dropped significantly compared to the starting of the drying program. In this case, the air is then controlled to inflow from all air guide holes or only from the inner ring air guide hole 12 alternately. In this way, a drying degree of the loads in various places in the inner tub 9 can be more uniform, avoiding the case where the load entangled on the periphery is over-dried while the load entangled inside is not fully dried.

[0084] It should be noted that the operation in the above-mentioned embodiment of the controlling, based on the load humidity, the air to inflow into the inner tub from all air guide holes or from the inner ring air guide hole alternately is only to illustrate the inventive concept that in the present disclosure, the air can be controlled, based on the load information, to inflow into the inner tub from all the air guide holes or from the inner ring air guide hole alternately to improve the drying efficiency. It can be understood that in the present disclosure, in addition to the load humidity, the air can also be controlled, based on other load information, such as load weight, load distribution, load material, load thickness, load dimension, etc., to inflow into the inner tub from all the air guide holes or from the inner ring air guide hole alternately to improve the drying efficiency.

[0085] The entire drying process is controlled by the laundry treatment device in accordance with the method according to the embodiments of the present disclosure, and a drying judgment is performed on the load during the drying process. When it is determined that a predetermined drying judgment condition has been reached, the current drying program is controlled to end.

[0086] The above-mentioned predetermined drying judgment condition can comprise that a total execution duration of the drying program reaches a set duration, or that the load humidity of the load is smaller than a predetermined humidity threshold, etc.

[0087] Based on the structure shown in FIGS. 1 to 3 and the drying control method according to the aforementioned embodiments of the present disclosure, it can be summarized that two air inflowing modes are provided in the present disclosure, which can be referred to as a first air inflowing mode and a second air inflowing mode. The first air inflowing mode is to allow air to inflow from all the air guide holes, and the second air inflowing mode is to allow air to inflow from an inner ring air guide hole. In the present disclosure, during the drying process, the air is controlled to inflow into the inner tub in the first air inflowing mode and/or the second air inflowing mode by controlling the switching apparatus to be turned on or off.

[0088] Based on this, the laundry treatment device can have at least three drying manners. The first manner is that the switching apparatus is controlled to be turned on during the entire drying process to allow air to inflow from all the air guide holes. The second manner is that the switching apparatus is controlled to be closed during the entire drying process to allow air to inflow only from the inner ring air guide hole. The third manner is that during the entire drying process, there are both a stage of air inflowing from all the air guide holes and a stage of air inflowing only from the inner ring air guide hole.

[0089] The laundry treatment device can determine which of the above-mentioned three drying manners to be used for drying based on the received start instruction for the drying program. Specifically, the laundry treatment device is configured to receive a start instruction for a drying program, and control the air to inflow into the inner tub in the first air inflowing mode in response to determining that a first predetermined air inflowing condition has been reached; and/or receive a start instruction for a drying program, and control the air to inflow into the inner tub in the second air inflowing mode in response to determining that a second predetermined air inflowing condition has been reached.

[0090] The above-mentioned first predetermined air inflowing condition can be a predetermined situation that allows air to inflow through all the air guide holes of the

inner tub, such as a situation where a user selects to allow air to inflow through all the air guide holes, or a situation where few loads and no entanglement occurs, etc. The second predetermined air inflowing condition can be a predetermined situation that allows air to inflow only through the inner ring air guide hole, such as a situation where a user selects to allow air to inflow only through the inner ring air guide hole, or a situation where many loads and a serious entanglement occur.

[0091] In the third drying manner mentioned above, the laundry treatment device can allow the air to inflow in the first air inflowing mode or the second air inflowing mode alternately. Specifically, the laundry treatment device is configured to receive a start instruction for a drying program, and control the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately in response to determining that a predetermined alternating air inflowing condition has been reached. The predetermined alternating air inflowing condition can be that a current drying duration reaches a third predetermined duration, or the current load humidity is smaller than a predetermined threshold.

[0092] In an embodiment of the present disclosure, during a drying process, air can also be controlled, based on load information, to inflow into an inner tub in a first air inflowing mode and/or a second air inflowing mode. The load information can comprise one or more load-related information such as load humidity, load weight, load material, load thickness, etc.

[0093] As an example, the air can be controlled, based on the load humidity, to inflow into the inner tub in the first air inflowing mode or the second air inflowing mode alternately. Specifically, when the load humidity is greater than or equal to a predetermined threshold, the air is controlled to inflow into the inner tub in the first air inflowing mode. When the load humidity is smaller than the predetermined threshold, it is determined that a predetermined alternating air inflowing condition has been reached, and the air is controlled to inflow into the inner tub in the first air inflowing mode or the second air inflowing mode alternately.

[0094] In the embodiments of the present disclosure, a humidity sensor is configured to detect the load humidity, and the humidity sensor can be mounted at the inner wall of the inner tub 9. Alternatively, the inner tub 9 is provided with a lifting rib at a side wall of the inner tub 9, and the humidity sensor can be mounted at the lifting rib. The humidity sensor is mounted at the inner wall or the enhancement rib of the inner tub 9, and the collected load humidity is humidity of the load entangled on the periphery. When it is detected that the load humidity is smaller than the predetermined threshold, it is indicated that the humidity of the load entangled on the periphery has dropped significantly compared to the starting of the drying program. In this case, the air is controlled to inflow in the first air inflowing mode or the second air inflowing mode alternately. In this way, a drying degree of the loads in various places in the inner tub can be more uniform, avoiding the case where the load entangled on the periphery is over-dried while the load entangled inside is not fully dried.

[0095] The laundry treatment device can allow the air to inflow from all the air guide holes of the inner tub or only from the inner ring air guide hole of the inner tub during the entire drying process, or the entire drying process comprises both the stage of the air inflowing from all the air guide holes of the inner tub and the stage of the air inflowing only from the inner ring air guide hole of the inner tub. In this way, the drying manner of the laundry treatment device is more diversified, and the drying control is more flexible and can be adapted to one or more of a plurality of aspects such as user needs and the spatial distribution of the load in the inner tub, which can avoid the case where the load close to the tub wall is over-dried while the load in the middle part is not fully dried. In this way, the drying effect is improved.

[0096] In order to facilitate understanding of the drying control process according to the embodiments of the present disclosure, based on the structure shown in FIG. 1, the drying control process will be described below with reference to FIG. 7. It should be noted that FIG. 7 is only an example of a drying control procedure, and the drying control procedure may not be strictly carried out in accordance with the procedure shown in FIG. 7 in actual application.

[0097] As shown in FIG. 7, at block S1, a start instruction for a drying program is received. At block S2, at least one of the first baffle and the second baffle is controlled to be opened to allow the air to inflow from all the air guide holes of the inner tub. At block S3, it is determined whether a drying duration has reached a third predetermined duration. In response to determining that the drying duration has reached the third predetermined duration, an operation at block S4 is performed. In response to determining that the drying duration has not reached the third predetermined duration, the operation at block S3 continues to be performed. At block S4, each of the first baffle and the second baffle is controlled to be closed to allow the air to inflow into the inner tub from the inner ring air guide hole of the inner tub. At block S5, it is determined whether a drying duration of the air inflowing only from the inner ring air guide hole has reached a second predetermined duration. In response to determining that the drying duration of the air inflowing only from the inner ring air guide hole has reached the second predetermined duration, an operation at block S6 is performed. In response to determining that the drying duration of the air inflowing only from the inner ring air guide hole has not reached the second predetermined duration, the operation at block S5 continues to be performed. At block S6, at least one of the first baffle and the second baffle is controlled to be opened to allow the air to inflow from all the air guide holes of the inner tub. At block S7, it is determined whether a current drying duration of the air inflowing from all the air guide holes of the inner tub has reached a first predetermined duration. In response to

determining that the current drying duration of the air inflowing from all the air guide holes of the inner tub has reached the first predetermined duration, an operation at block S8 is performed. In response to determining that the current drying duration of the air inflowing from all the air guide holes of the inner tub has not reached the first predetermined duration, the operation at block S7 continues to be performed. At block S8, it is determined whether a predetermined drying judgment condition has been reached. In response to determining that the predetermined drying judgment condition has been reached, an operation at block S9 is performed. In response to determining that the predetermined drying judgment condition has not been reached, the operation at block S4 is returned to. At block S9, the current drying program is controlled to end.

[0098] In the embodiments of the present disclosure, the new air duct structure is designed for the laundry treatment device. The inner rib is arranged in the rear cover, and the inner rib is configured to divide the air duct into the outer ring air duct and the inner ring air duct. Moreover, by opening or closing the baffle, the air is alternately controlled to inflow from both the outer ring air duct and the inner ring air duct or only from the inner ring air duct. When the air inflows from both the outer ring air duct and the inner ring air duct, the air inflowing into the inner tub is more uniformly filled in the tub. In this way, the uniformity of drying the load is increased while reducing the phenomenon that the load is blown onto the filter screen and gets stuck by the filter screen. When the air inflows only from the inner ring air guide hole of the inner tub, the penetration of the concentrated air is better, and the drying of the load that is wrapped in a middle part of the inner tub and not easily blown can be accelerated. By performing the two inflowing modes alternately, the flexible control of the air inflowing from different parts can be achieved, and the middle part of the inner tub can be blown and dried in a targeted manner. As a result, the total drying duration of the middle part during the entire drying process is longer than the total drying duration of the periphery close to the tub wall during the entire drying process. Thus, the case where the load close to the tub wall is over-dried while the load in the middle part is not fully dried is avoided.

[0099] According to embodiments of the present disclosure, a drying control apparatus is provided. The apparatus is configured to perform the drying control method according to any of the embodiments described above. As shown in FIG. 8, the apparatus comprises a laundry treatment chamber 201, an air guide hole 202, and an air inflowing control module 203.

[0100] The air guide hole 202 is in communication with the laundry treatment chamber 201, and the air guide hole 202 comprises an inner ring air guide hole 12. The air inflowing control module 203 is connected to a switching apparatus 204, and the air inflowing control module 203 is configured to control the switching apparatus 204 to normally open the inner ring air guide hole 12 during the drying process.

[0101] The inner ring air guide hole 12 is normally opened, and the air inflows into the laundry treatment chamber 201 from the middle part of the inner tub. The penetration of the concentrated air is better, which can accelerate the drying of the load that is entangled inside and not easily blown, and can blow and dry the middle part of the inner tub in a targeted manner. Thus, the case where the load close to the tub wall is over-dried while the load in the middle part is not fully dried can be avoided.

[0102] In some embodiments, the air guide hole 202 further comprises an outer ring air guide hole 13, and the air inflowing control module 203 is configured to control the switching apparatus 204 to open or close the outer ring air guide hole 13.

[0103] When the outer ring air guide hole 13 is opened, air inflows into the laundry treatment chamber 201 from both the outer ring air guide hole 13 and the inner ring air guide hole 12, and the air is more uniformly filled in the laundry treatment chamber. In this way, the uniformity of drying the load is increased while reducing the phenomenon that the load is blown onto the filter screen and gets stuck by the filter screen. When the outer ring air guide hole 13 is closed and the air inflows only from the inner ring air guide hole 12, the penetration of the concentrated air is better, and the drying of the load that is wrapped in the middle part of the inner tub and not easily blown can be accelerated. In this way, the case where the load close to the tub wall is over-dried while the load in the middle part is not fully dried can be avoided.

[0104] In some embodiments, the air inflowing control module 203 is further configured to control, based on load information, the switching apparatus 204 to open or close the outer ring air guide hole 13. The load information can comprise one or more of a load weight, load humidity, load material, load thickness, and other information.

[0105] The outer ring air guide hole 13 is controlled to be opened or closed based on the load information, and therefore the air is switched to inflow from all the air guide holes or only from the inner ring air guide hole 12. As a result, the drying process of the load can be adapted to the load information of the load, and the air inflowing mode suitable for the load can be selected more specifically for the drying. In this way, the drying effect of the load is improved.

[0106] Specifically, the air inflowing control module 203 is further configured to alternately control, based on load humidity, the switching apparatus 204 to open or close the outer ring air guide hole 13 .

[0107] The outer ring air guide hole 13 is opened or closed alternately based on the load humidity, and therefore the air is alternately switched to inflow from all the air guide holes or only from the inner ring air guide hole 12 alternately. Since the humidity of the loads in various places of the laundry treatment chamber 201 is different during the drying process, switching the air inflowing mode based on the load humidity can enable the air inflowing mode to be adapted to a spatial distribution

of the loads in the laundry treatment chamber 201. As a result, dehumidification efficiency of the loads in various places of the laundry treatment chamber 201 is more uniform. In this way, the case where the load close to the tub wall is over-dried while the load in the middle is not fully dried can be avoided.

[0108] The drying control apparatus according to the above-mentioned embodiments of the present disclosure and the drying control method according to the embodiments of the present disclosure have the same inventive concept, which has the same beneficial effects as the method employed, executed, or implemented by an application program stored therein.

[0109] According to embodiments of the present disclosure, a laundry treatment device is also provided to perform the above-mentioned drying control method. The laundry treatment device can be a laundry treatment device with a drying function such as a washer dryer combo and a laundry dryer. Referring to FIG. 9, FIG. 9 is a schematic diagram showing a laundry treatment device according to some embodiments of the present disclosure. As shown in FIG. 9, the laundry treatment device 40 comprises a processor 400, a memory 401, a bus 402, and a communication interface 403. The processor 400, the communication interface 403, and the memory 401 are connected via the bus 402. The memory 401 has a computer program that is executable by the processor 400 stored thereon. The processor 400, when executing the computer program, implements the drying control method according to any of the aforementioned embodiments of the present disclosure.

[0110] The memory 401 can comprise a high-speed random access memory (RAM), and may also comprise a non-volatile memory, such as at least one disk memory. A communication connection between a network element of the device and at least one other network element is realized by at least one communication interface 403 (which may be wired or wireless), which may use the Internet, a wide area network, a local network, a metropolitan area network, etc.

[0111] The bus 402 can be an ISA bus, a PCI bus or an EISA bus, etc. The bus can be divided into an address bus, a data bus, a control bus, etc. The memory 401 is configured to store a program, and the processor 400 is configured to execute the program after receiving an execution instruction. The drying control method disclosed in any embodiment of the present disclosure can be applied in the processor 400, or implemented by the processor 400.

[0112] The processor 400 can be an integrated circuit chip with signal processing capability. In an implementation, the steps of the method embodiments mentioned above can be implemented by hardware integrated logic circuits in a processor or instructions in the form of software in the processor 400. The processor 400 mentioned above can be a general-purpose processor, comprising a Central Processing Unit (CPU), a Network Processor (NP), etc., and may further be a Digital Signal Processor (DSP), an Application Specific Integrated Circuit (ASIC), an Field Programmable Gate Array (FPGA) or another programmable logic device, a discrete gate or transistor logic device, or a discrete hardware component. The methods, steps, and logical block diagrams disclosed in the embodiments of the present disclosure can be implemented or performed. The general-purpose processor may be a microprocessor, or the processor may further be any conventional processor, etc. The steps of the methods disclosed in combination with any of the embodiments of the present disclosure may be directly embodied as being performed by a hardware decoding processor or performed by a combination of a hardware module and a software module in a decoding processor. The software module may be located in a random memory, a flash memory, a read-only memory, a programmable read-only memory or an electrically erasable programmable memory, a register, and other storage media mature in the art. The storage medium is located in the memory 401, and the processor 400 reads information in the memory 401 and completes the steps of the above method in combination with the hardware.

[0113] The laundry treatment device according to the embodiments of the present disclosure and the drying control method according to the embodiments of the present disclosure have the same inventive concept, which has the same beneficial effects as the method employed, executed, or implemented thereby.

[0114] According to embodiments of the present disclosure, a computer-readable storage medium corresponding to the drying control method according to the above embodiments is also provided. Referring to FIG. 10, the computer-readable storage medium shown is a CD 30, having a computer program (i.e., a program product) stored thereon. The computer program, when executed by a processor, performs the drying control method according to any of the above embodiments.

[0115] It should be noted that examples of the computer-readable storage medium may also comprise, but are not limited to, a Phase-change Memory (PRAM), a Static RAM (SRAM), a Dynamic RAM (DRAM), other types of RAMs, Read-only Memory (ROM), Electrically Erasable Programmable Read-Only Memory (EEPROM), a flash memory or other optical or magnetic storage media, which will not be repeated herein.

[0116] The computer-readable storage medium according to the above embodiments of the present disclosure and the drying control method according to the embodiments of the present disclosure have the same inventive concept, which has the same beneficial effects as the method employed, executed, or implemented by the application program stored therein.

[0117] It should be noted that a large number of specific details are described in the specification provided herein. However, it can be understood that the embodiments of the present disclosure can be practiced without these specific details. In some examples, structures, and techniques that are publicly known are not shown in detail for

no vague understanding of the present specification.

[0118] Similarly, it should be understood that, in order to streamline the present disclosure and aid in understanding one or more of the various aspects, in the description of exemplary embodiments of the present disclosure above, the various features of the present disclosure are sometimes grouped together in individual embodiments, figures, or descriptions thereof. However, the disclosed method should not be construed as reflecting an intent that the present disclosure claimed for protection requires more features than those expressly documented in each claim. More precisely, as reflected in the claims below, the aspects lie in fewer than all of the features of the individual embodiments disclosed earlier. Accordingly, the claims that follow a specific embodiment are thereby expressly incorporated into that specific embodiment, with each claim itself serving as a separate embodiment of the present disclosure.

[0119] In addition, those skilled in the art can understand that although some embodiments described herein comprise some features comprised in other embodiments but not others features comprise in these embodiments, combinations of features from different embodiments are meant to be within the scope of the present disclosure and form different embodiments. For example, in the following claims, any one of the embodiments claimed for protection may be used in any combination.

[0120] While the preferred specific embodiments of the present disclosure have been described above, the protection scope of the present disclosure is not limited to these embodiments. Various variants and alternatives can be easily conceived by any of those skilled in the art without departing from the technical scope of the present disclosure. Therefore, these variants and alternatives are to be encompassed by the protection scope of present disclosure as defined by the claims as attached.

Claims

1. A drying control method, comprising:

receiving a start instruction for a drying program; and

controlling a switching apparatus to be turned on or turned off to allow air to inflow from all air guide holes of an inner tub or from an inner ring air guide hole of the inner tub.

2. The method according to claim 1, wherein said controlling the switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub comprises:

controlling the switching apparatus to be turned on to allow the air to inflow into the inner tub from all the air guide holes of the inner tub; or

controlling the switching apparatus to be turned off to allow the air to inflow into the inner tub from the inner ring air guide hole of the inner tub.

3. The method according to claim 1, wherein:

the switching apparatus comprises a first baffle and a second baffle; and

said controlling the switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub comprises:

controlling at least one of the first baffle or the second baffle to be opened to allow the air to inflow into the inner tub from all the air guide holes of the inner tub; or

controlling each of the first baffle and the second baffle to be closed to allow the air to inflow into the inner tub from the inner ring air guide hole of the inner tub.

4. The method according to claim 1, further comprising:

controlling, during a drying process, the switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub alternately.

5. The method according to claim 4, wherein said allowing the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub alternately comprises:

controlling the air to inflow from all the air guide holes of the inner tub for a first predetermined duration;

controlling, in response to determining that the first predetermined duration has been reached, the air to inflow from the inner ring air guide hole of the inner tub for a second predetermined duration; and

returning, in response to determining that the second predetermined duration has been reached, to the operation of said controlling the air to inflow from all the air guide holes of the inner tub for the first predetermined duration, to perform a loop.

6. The method according to claim 5, wherein the first predetermined duration is greater than the second predetermined duration.

7. The method according to claim 4, further comprising:

receiving the start instruction for the drying program, and controlling the air to inflow from all the air guide holes of the inner tub;

determining that a predetermined alternating air inflowing condition has been reached, and performing the operation of said controlling the switching apparatus to be turned on or turned off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub alternately.

8. The method according to claim 7, wherein said determining that the predetermined alternating air inflowing condition has been reached comprises:

determining, in response to a current drying duration reaching a third predetermined duration, that the predetermined alternating air inflowing condition has been reached; or
obtaining current load humidity, and determining, when the load humidity is smaller than a predetermined threshold, that the predetermined alternating air inflowing condition has been reached.

9. The method according to claim 1, further comprising:
during a drying process, controlling the current drying program to end in response to determining that a predetermined drying judgment condition has been reached.

10. A drying control method, comprising:
controlling, during a drying process, air to inflow into an inner tub in a first air inflowing mode and/or in a second air inflowing mode, the first air inflowing mode being to allow air to inflow from all air guide holes, and the second air inflowing mode being to allow air to inflow from an inner ring air guide hole.

11. The method according to claim 10, wherein said controlling, during the drying process, the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode comprises:

receiving a start instruction for a drying program, controlling the air to inflow into the inner tub in the first air inflowing mode in response to determining that a first predetermined air inflowing condition has been reached; and/or
receiving a start instruction for a drying program, controlling the air to inflow into the inner tub in the second air inflowing mode in response to determining that a second predetermined air inflowing condition has been reached.

12. The method according to claim 10, wherein said controlling, during the drying process, the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode comprises:
receiving a start instruction for a drying program, and controlling the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately in response to determining that a predetermined alternating air inflowing condition has been reached.

13. The method according to claim 12, wherein said controlling the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode comprises:
controlling a switching apparatus to be turned on or off to allow the air to inflow from all the air guide holes of the inner tub or from the inner ring air guide hole of the inner tub.

14. The method according to claim 13, wherein:

the switching apparatus comprises a first baffle and a second baffle;
said controlling the switching apparatus to be turned on comprises:
controlling at least one of the first baffle or the second baffle to be opened; and
said controlling the switching apparatus to be turned off comprises:
controlling each of the first baffle and the second baffle to be closed.

15. The method according to claim 12, wherein said controlling the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately comprises:

controlling the air to inflow into the inner tub in the first air inflowing mode for a first predetermined duration;
controlling, in response to determining that the first predetermined duration has been reached, the air to inflow into the inner tub in the second air inflowing mode for a second predetermined duration, the first predetermined duration being longer than the second predetermined duration; and
returning, in response to determining that the second predetermined duration has been reached, to the operation of said controlling the air to inflow into the inner tub in the first air inflowing mode for the first predetermined duration, to perform the loop.

16. The method according to claim 12, wherein said determining that the predetermined alternating air inflowing condition has been reached comprises:

determining, in response to a current drying duration reaching a third predetermined duration, that the predetermined alternating air inflowing condition has been reached; or
obtaining current load humidity, and determin-

ing, when the load humidity is smaller than a predetermined threshold, that the predetermined alternating air inflowing condition has been reached.

17. A drying control method, comprising:
during a drying process, controlling, based on load information, air to inflow into an inner tub in a first air inflowing mode and/or in a second air inflowing mode, the first air inflowing mode being to allow air to inflow from all air guide holes, and the second air inflowing mode being to allow air to inflow from an inner ring air guide hole.

18. The method according to claim 17, wherein said controlling, based on the load information, the air to inflow into the inner tub in the first air inflowing mode and/or in the second air inflowing mode comprises:
controlling, based on load humidity, the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately.

19. The method according to claim 18, wherein said controlling, based on the load humidity, the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately comprises:

controlling, when the load humidity is greater than or equal to a predetermined threshold, air to inflow into the inner tub in the first air inflowing mode; and
controlling, when the load humidity is smaller than the predetermined threshold, the air to inflow into the inner tub in the first air inflowing mode or in the second air inflowing mode alternately.

20. A drying control apparatus, comprising:

a laundry treatment chamber;
an air guide hole in communication with the laundry treatment chamber, the air guide hole comprising an inner ring air guide hole;
an air inflowing control module connected to a switching apparatus, the air inflowing control module being configured to control the switching apparatus to normally open the inner ring air guide hole during a drying process.

21. The apparatus according to claim 20, wherein:

the air guide hole further comprises an outer ring air guide hole; and
the air inflowing control module is further configured to control the switching apparatus to open or close the outer ring air guide hole.

22. The apparatus according to claim 21, wherein the air inflowing control module is further configured to control, based on load information, the switching apparatus to open or close the outer ring air guide hole.

23. The apparatus according to claim 22, wherein the air inflowing control module is further configured to control, based on load humidity, the switching apparatus to open or close the outer ring air guide hole alternately.

24. A laundry treatment device, comprising:

a memory;
a processor; and
a computer program stored in the memory and executable by the processor, wherein the processor, when executing the computer program, implements a method according to any one of claims 1 to 19.

25. A computer-readable storage medium, having a computer program stored thereon, wherein the computer program, when executed by a processor, implements a method according to any one of claims 1 to 19.

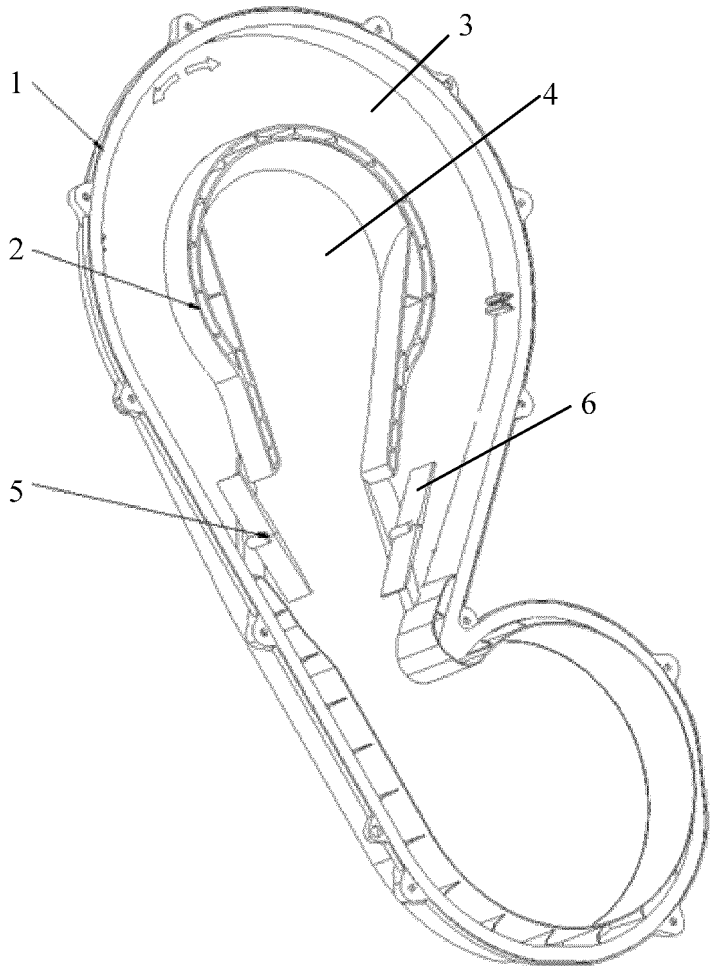

FIG. 1

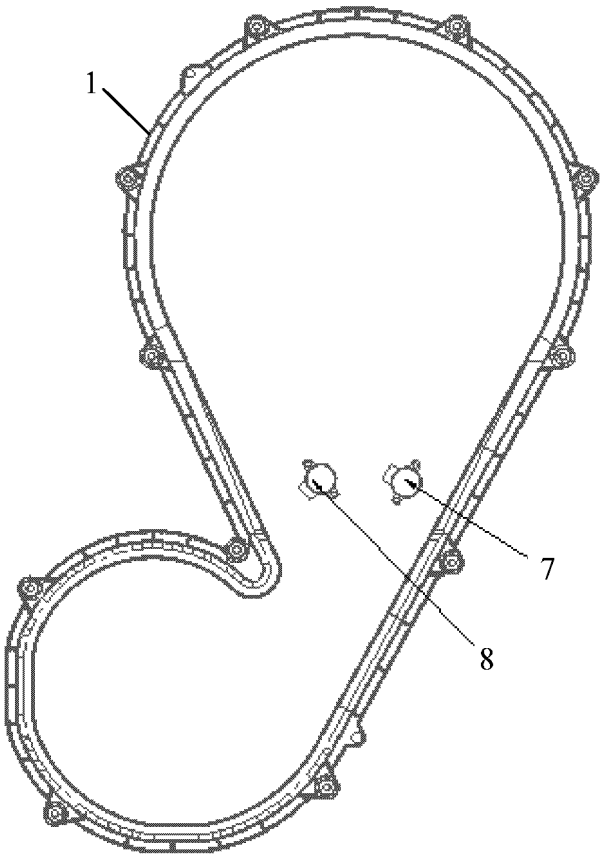

FIG. 2

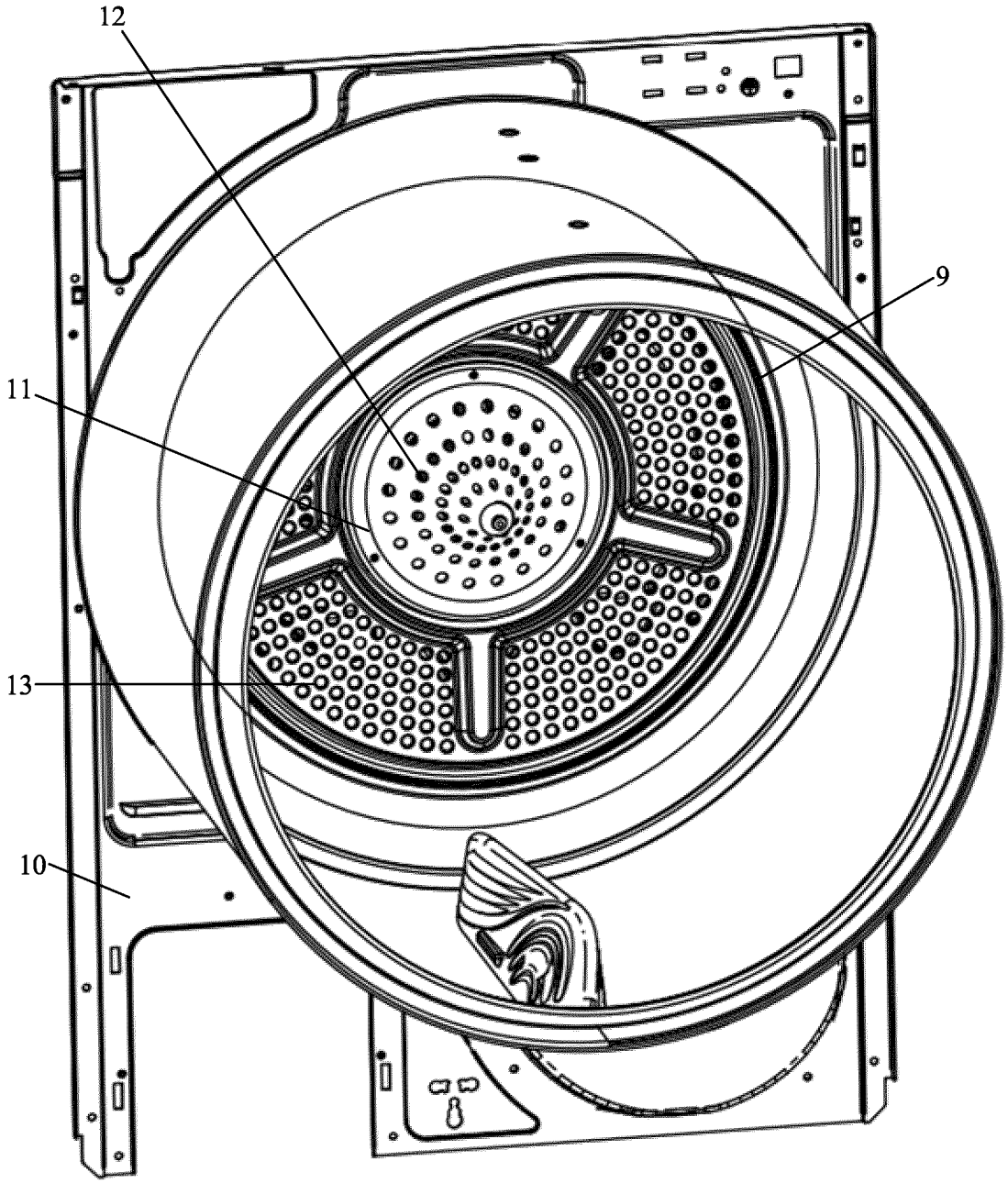
12
9
11
13
10

FIG. 3

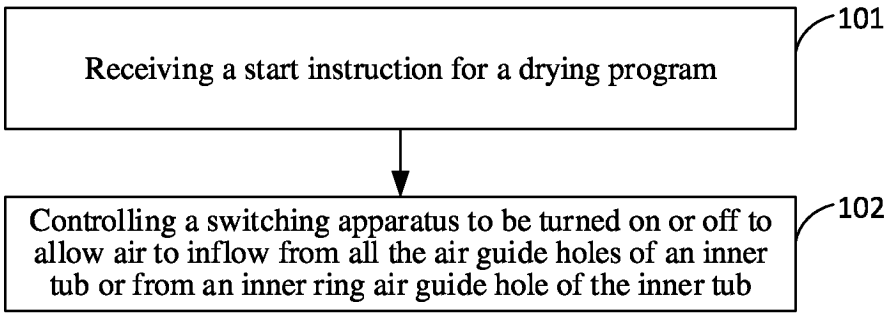
Receiving a start instruction for a drying program
101
Controlling a switching apparatus to be turned on or off to allow air to inflow from all the air guide holes of an inner tub or from an inner ring air guide hole of the inner tub
102

FIG. 4

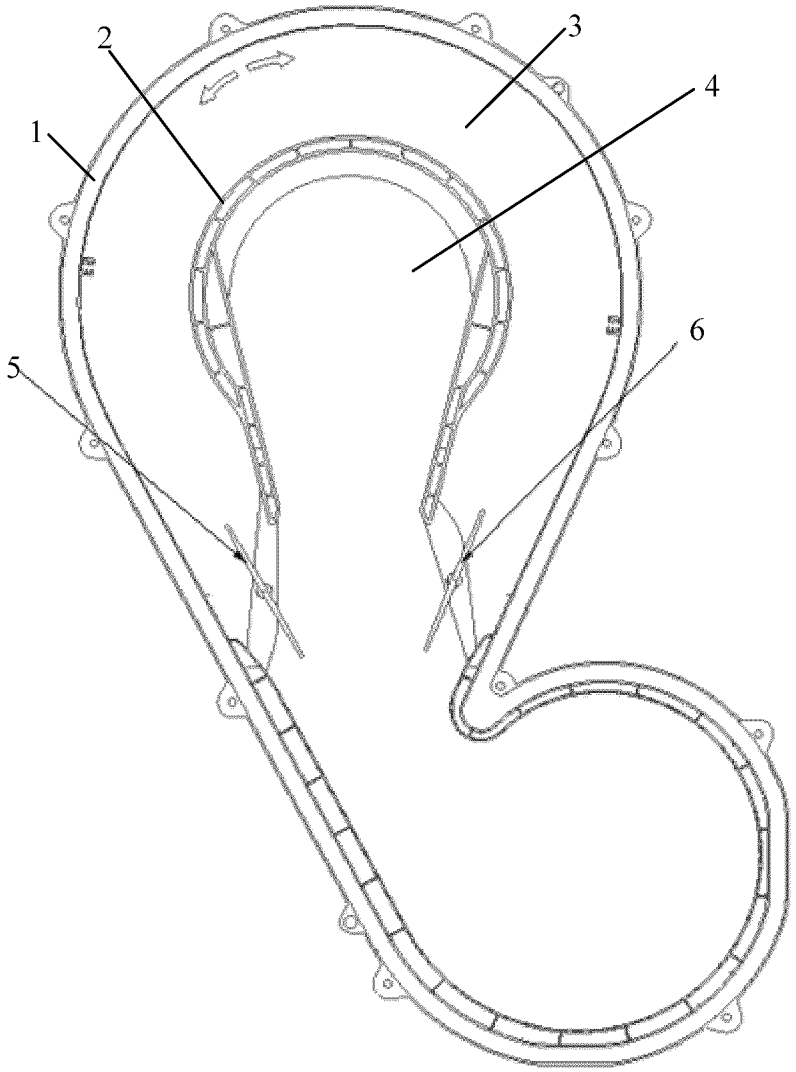

FIG. 5

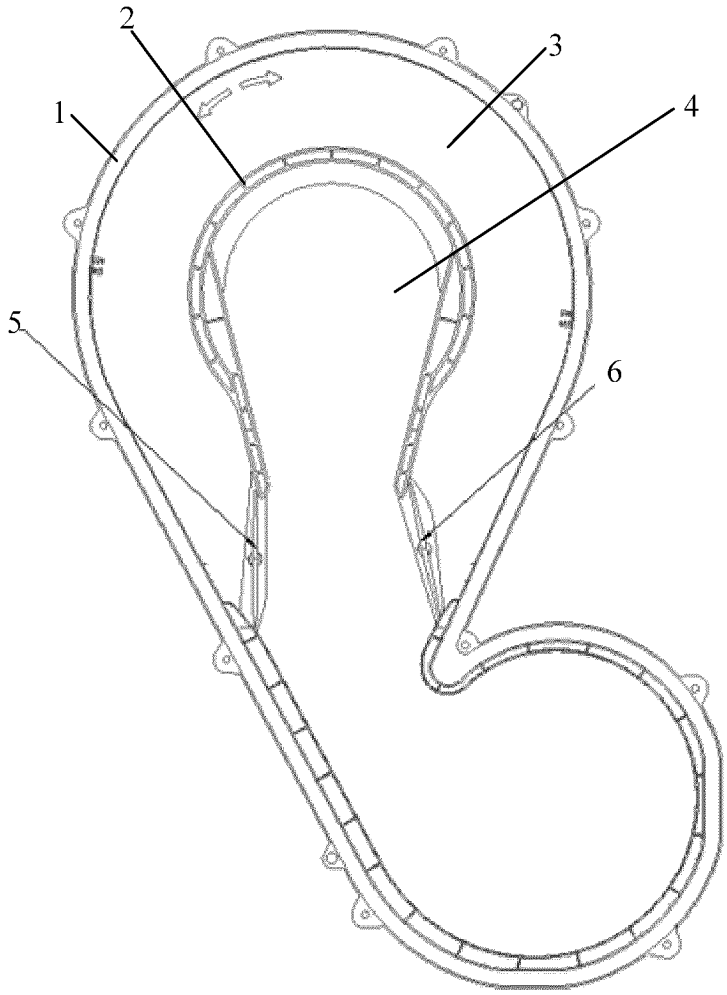

FIG. 6

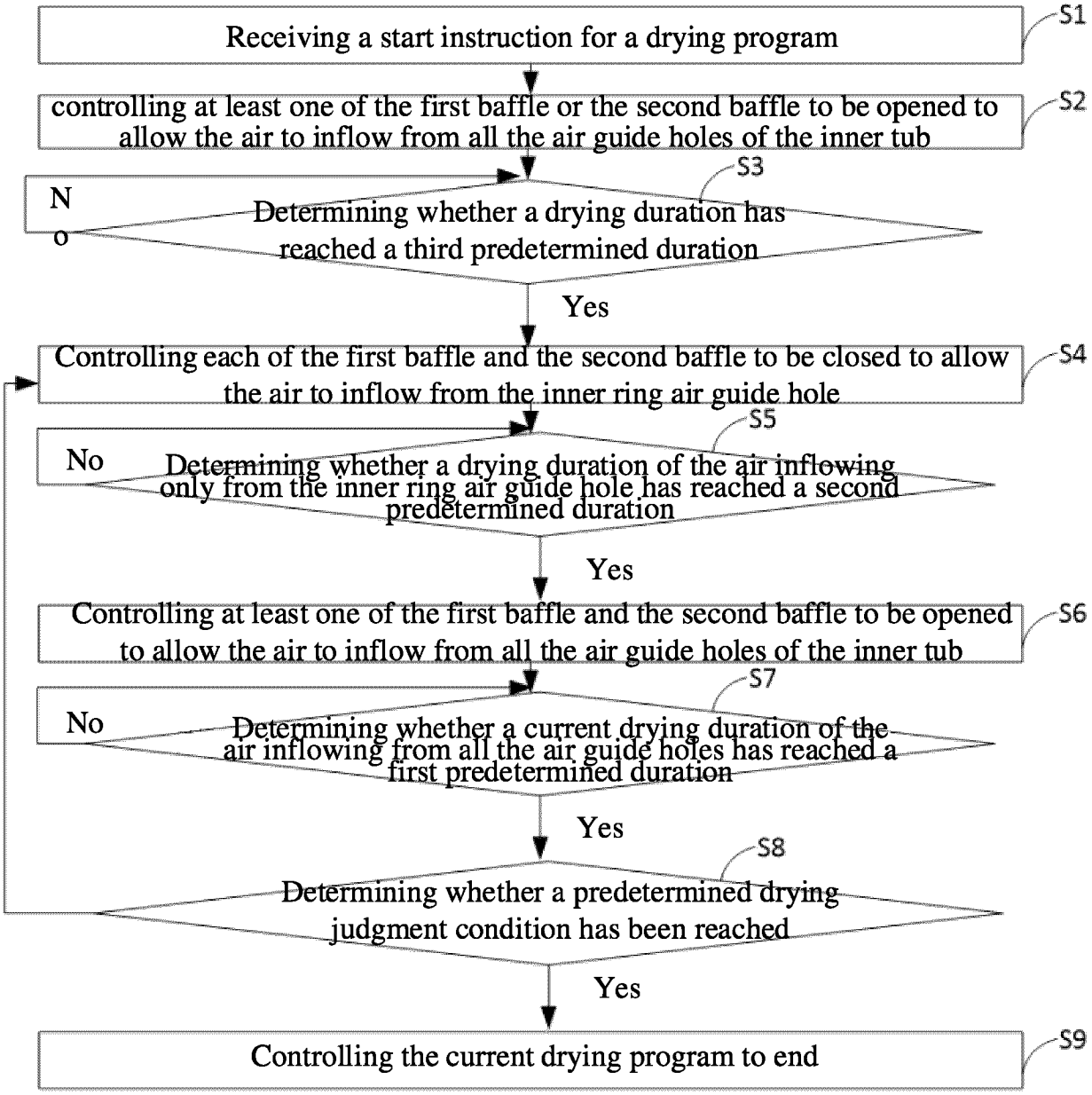
Receiving a start instruction for a drying program
S1
controlling at least one of the first baffle or the second baffle to be opened to allow the air to inflow from all the air guide holes of the inner tub
S2
S3
No
Determining whether a drying duration has reached a third predetermined duration
Yes
Controlling each of the first baffle and the second baffle to be closed to allow the air to inflow from the inner ring air guide hole
S4
S5
No
Determining whether a drying duration of the air inflowing only from the inner ring air guide hole has reached a second predetermined duration
Yes
Controlling at least one of the first baffle and the second baffle to be opened to allow the air to inflow from all the air guide holes of the inner tub
S6
S7
No
Determining whether a current drying duration of the air inflowing from all the air guide holes has reached a first predetermined duration
Yes
S8
Determining whether a predetermined drying judgment condition has been reached
Yes
Controlling the current drying program to end
S9

FIG. 7

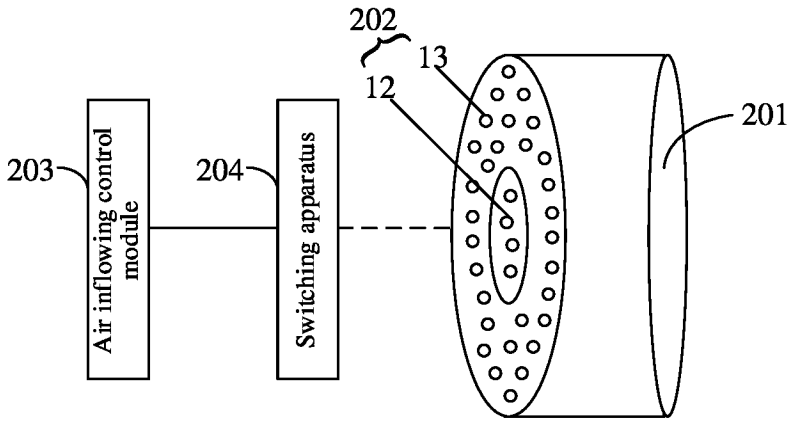
202
13
12
201
203
Air inflowing control module
204
Switching apparatus

FIG. 8

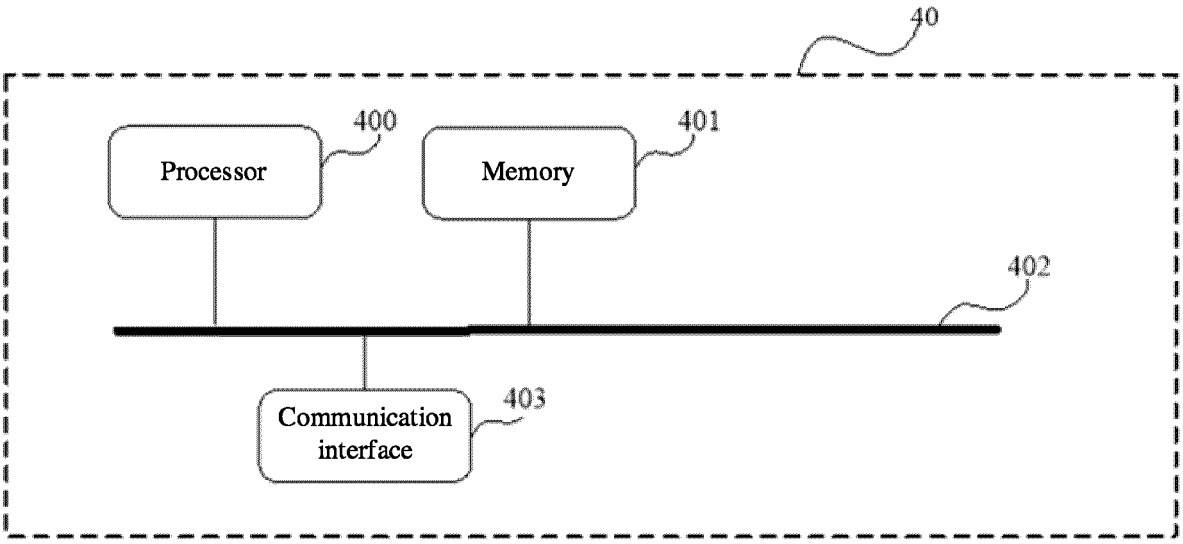
40
400
Processor
401
Memory
402
403
Communication interface

FIG. 9

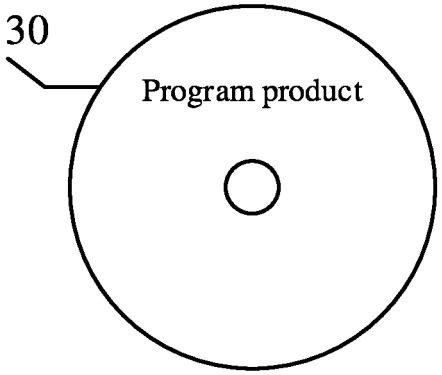
30
Program product

FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/101741

A. CLASSIFICATION OF SUBJECT MATTER

D06F58/02(2006.01)i; D06F58/20(2006.01)i; D06F34/26(2020.01)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 F04D F26B

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: 内桶, 滚筒, 内筒, 干衣桶, 干衣筒, 引导, 导向, 导流, 挡板, 后, 罩, 壁, 底, 阀, 开关, 切换, 后罩, 烘干管, 风扇, 电扇, 风机, 孔, 法兰, cylinder, duct, guid+, rotat+, space, wind, dry, path, airflow, separat+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	CN 116641212 A (HUBEI MIDEA WASHING MACHINE CO., LTD.) 25 August 2023 (2023-08-25) description, paragraphs 49-131, and figures 1-12	1-4, 9-11, 17, 20-22, 24-25
E	CN 116641218 A (HUBEI MIDEA WASHING MACHINE CO., LTD.) 25 August 2023 (2023-08-25) description, paragraphs 53-91, and figures 1-9	1-4, 9-11, 17, 20-22, 24-25
X	JP 2013085681 A (PANASONIC CORP.) 13 May 2013 (2013-05-13) description, paragraphs 17-65, and figures 1-8	10, 24-25
X	KR 20180080720 A (AERONET INC.) 13 July 2018 (2018-07-13) description, specific embodiments, and figures 1-13	10, 24-25
X	KR 20180095494 A (AERONET INC.) 27 August 2018 (2018-08-27) description, paragraphs 35-88, and figures 4-8	10, 24-25
Y	KR 20180095494 A (AERONET INC.) 27 August 2018 (2018-08-27) description, paragraphs 35-88, and figures 4-8	1-23

☑ 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
05 September 2023	**22 September 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/CN2023/101741

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	CN 106498677 A (BSH HAUSGERAETE GMBH) 15 March 2017 (2017-03-15) entire document	1-25
A	CN 110485131 A (QINGDAO HAIER WASHING MACHINE CO., LTD. et al.) 22 November 2019 (2019-11-22) entire document	1-25
A	CN 1401845 A (LG ELECTRONICS INC.) 12 March 2003 (2003-03-12) entire document	1-25
A	WO 2022105701 A1 (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD. et al.) 27 May 2022 (2022-05-27) entire document	1-25

Form PCT/ISA/210 (second sheet) (July 2022)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2023/101741

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WO 2022105701 A1	27 May 2022	None	

Form PCT/ISA/210 (patent family annex) (July 2022)

REFERENCES CITED IN THE DESCRIPTION

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- CN 202211620498 **[0001]**