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(54) ACCESSORY, DRYING DEVICE, DRYING ASSEMBLY, AND CONTROL METHOD

(57) An accessory (11), a drying apparatus (12), a drying assembly (10), and a method of controlling the same, wherein the accessory (11) comprises a main body and a first storage module (114), a first communication module (115) configured on the main body, the main body being capable of being detachably attached to the drying apparatus (12) and the main body allowing an airflow to pass through; the first communication module (115) communicating with the drying apparatus (12) and transmits data stored in the first storage module (114) to select, add, delete, or modify at least one of one or more operation modes of the drying assembly (10).

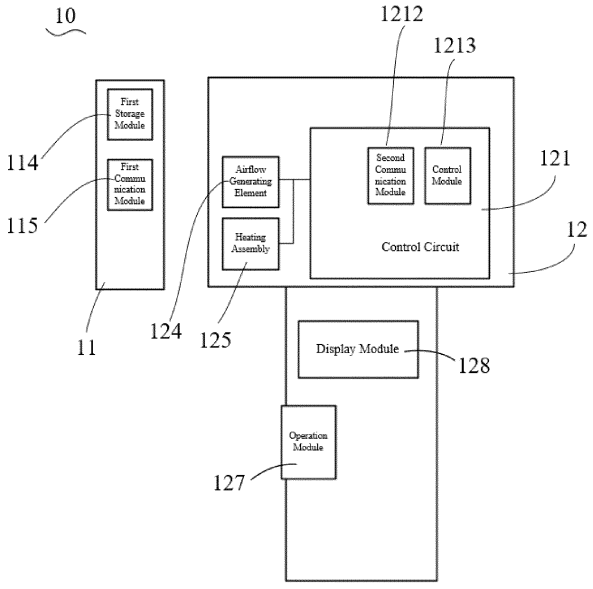

FIG. 1

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Description

FIELD OF THE INVENTION

[0001] The present disclosure is related to the technical field of a drying apparatus and in particular, related to methods to control operation modes of the drying apparatus.

BACKGROUND OF THE INVENTION

[0002] A drying equipment achieves the purpose of drying an object by facilitating the evaporation of moisture from the object. Hair dryers, for instance, typically blow heated airflow through user's hair, accelerating the hair drying process.

[0003] However, during the hair drying process, users often have diverse personalized requirements beyond simply drying their hair, such as reducing frizz curls, styling, and achieving fluffy texture. In order to provide a better user experience, current hair drying technology typically features preset airflow speed levels, such as low, medium, and high, and similarly, preset airflow temperature levels, including cold air (no heat), medium temperature, and high temperature. Users can choose a combination of airflow speed and airflow temperature settings based on their needs.

[0004] Some hair dryers integrate airflow speed and airflow temperature controls directly, offering settings like "Fast Mode" with maximum airflow speed and airflow temperature, "Cool Mode" with maximum airflow speed and minimum airflow temperature (e.g., heat off), and "Soft Mode" with medium airflow speed and airflow temperature. Users can switch between different modes as needed. Regardless of the settings used, the underlying principle is to provide users with a limited number of preset combinations of airflow temperature and speed.

[0005] In addition, since the shape and direction of the airflow from the hair dryer significantly affect the drying process, manufacturers typically design various nozzles for hair dryers. Different nozzles can produce different airflow patterns, for instance, a fluffy nozzle disturbs the airflow to create a more voluminous effect, while a styling nozzle transforms the airflow into a flat shape for hair styling. By adjusting airflow temperature and using appropriate techniques, the styling nozzle allows users to style their hair with higher airflow temperatures.

[0006] However, using different nozzles requires selecting corresponding operation modes of the hair dryer. For instance, a styling nozzle may require a higher airflow temperature, while a fluffy nozzle may necessitate a higher airflow speed. This means users need to choose the appropriate mode of the hair dryer based on the nozzle selected. The more choices users have, the higher the learning curve, and the greater the risk of using the wrong settings. Furthermore, manufacturers are constrained by the limited preset modes of hair dryers when optimizing or developing new nozzles, hindering the design of new nozzles.

SUMMARY OF THE INVENTION

[0007] The present disclosure provides an accessory, a drying apparatus, a drying assembly, and a control method, and is intended to solve the problems from the prior art that the existing hair dryers have high learning costs and preset operation modes of the hair dryers limit the subsequent development of nozzles.

[0008] An accessory provided in the present disclosure comprises a main body, a first storage module, and a first communication module configured on the main body; wherein the main body is configured to be detachably attached to a drying apparatus and allow an airflow to pass through; the first communication module communicating with the drying apparatus and transmitting data stored in the first storage module to select, add, delete, and modify at least one of one or more operation modes of the drying apparatus, each of the operation modes comprising target value of airflow speed and/or airflow temperature. , deleting, modifying at least one of the one or more operation modes of the drying apparatus, each operating mode comprising target value of airflow speed and/or airflow temperature.

[0009] A drying apparatus provided in the present disclosure comprises a housing, the housing configured with an air outlet for detachable accessory of an accessory at one end, the accessory is configured to allow an airflow to pass through; an airflow generating element is configured to effect the airflow; a heating assembly configured to heat the airflow; a control module configured to control the operation of the airflow generating assembly or the heating assembly; a second communication module electrically coupled to the control module, the second communication module configured to obtain data from the accessory; the control module configured to select, add, delete, modify at least one of one or more operating modes of the drying apparatus based on the data from the accessory, wherein the operating mode comprises target value of the airflow speed and/or the airflow temperature.

[0010] A drying assembly provided in the present disclosure comprises the accessory and the drying apparatus; and when the accessory is attached to the drying apparatus, the control module, based on the data from the accessory, perform at least one of selection, addition, deletion, and modification of the one or more operating modes of the drying apparatus.

[0011] A method of controlling a drying apparatus provided in the present disclosure comprises the following steps:

receiving data from an accessory, the accessory is attached to an air outlet of the drying apparatus and allows an airflow to pass through;

at least one of selection, addition, deletion, modification of one or more operating modes of the drying apparatus is performed based on data from the

accessory; the operation modes comprising target value of airflow speed and/or airflow temperature.

[0012] By adopting one of an accessory, a drying apparatus, a drying assembly and a control method provided in the present disclosure, after users attach the accessory to the drying apparatus, the drying apparatus obtains data after communicating with the accessory and selects, adds, deletes, or modifies at least one of one or more operating modes of the drying apparatus, so that the operating modes of the drying apparatus are mutually adapted to the accessory. The users can attach accessories purchased later on to the drying apparatus previously purchased, and the drying apparatus can switch to new operating modes to adapt to the new accessories. This not only reduces the learning cost of the users to use the accessories, but also enables the development and optimization of the accessories freeing from the limited preset operating modes of the drying apparatus.

[0013] Additional aspects and advantages of embodiments of the present disclosure will be given, in part, in the following detailed description, part of which will become apparent from the following detailed description or will be learned through the implementation of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The foregoing and/or additional aspects and advantages of the present disclosure will become apparent and readily understood from the detailed description of the embodiments in conjunction with the following accompanying drawings, wherein:

FIG. 1 is a schematic showing a module of a drying assembly in accordance with embodiments of the present disclosure;

FIG. 2 is a schematic showing a module of a drying assembly in accordance with embodiments of the present disclosure;

FIG. 3 is a schematic showing a module of a drying assembly in accordance with embodiments of the present disclosure;

FIG. 4 is an overall schematic showing a drying assembly in accordance with embodiments of the present disclosure;

FIG. 5 is an exploded view showing a drying apparatus in accordance with embodiments of the present disclosure;

FIG. 6 is a schematic showing internal structure of an accessory in accordance with embodiments of the present disclosure;

FIG. 7 is an exploded view showing a drying assembly in accordance with embodiments of the present disclosure;

FIGS. 8 to FIG. 13 are schematic illustrations of various structures of accessories in various embodiments of the present disclosure;

FIGS. 14 to FIG. 16 are schematic diagrams of various structures of drying apparatus in various embodiments of the present disclosure;

FIG. 17 is a flow diagram of a control method in accordance with embodiments of the present disclosure;

FIGS. 18 to FIG. 27 are detailed schematic showing corresponding steps of a control method in accordance with embodiments of the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0015] The embodiments of the present disclosure will be described in detail below. Instances of the embodiments are shown in the accompanying drawings, wherein the same or similar reference numerals represent the same or similar components or components having the same or similar functions throughout. The embodiments described below with reference to the accompanying drawings are exemplary and are used only to explain the embodiments of the present disclosure, and are not to be construed to limit the embodiments of the present disclosure.

[0016] As shown in **FIGS. 1** and **7**, a drying apparatus 12 provided in some embodiments of the present disclosure, is configured to dry a target by emitting an airflow at room temperature or a heated airflow. The drying apparatus 12 comprises a housing 126 and an airflow generating element 124, a heating assembly 125, a control module 1213, and a second communication module 1212 configured within the housing 126. The housing 126 is configured with an air outlet 122, which is configured for an accessory 11 to be attached in a removable manner, and the accessory 11 is a structure through which the airflow can pass through. A control circuit 121 is configured within the drying apparatus 12. The control module 1213 and the second communication module 1212 are configured on the control circuit 121 to enable the mutual communicate with each other. The airflow generating element 124, the heating assembly 125, and other electrical components referred to hereinafter are coupled to the control circuit 121 to effect electrical connection to the control module 1213.

[0017] The airflow generating element 124 may comprise a structure such as a motor, a propeller, and the like, and during operation of the airflow generating element 124, the motor rotates to drive the propeller to generate an airflow. The heating assembly 125 may comprise a structure such as an electric wire, a resistance wire, a PTC heat generator, etc., and the heating assembly 125 generates heat and heats the surrounding air during operation. When the drying apparatus 12 is in operation, the airflow generating element 124 generates an airflow in the housing 126, the heating assembly 125 heats the airflow, and the airflow leaves the drying apparatus 12 at a certain airflow speed and airflow temperature from the air outlet 122 and flows to the target object for drying. When the air outlet 122 of the drying apparatus 12 is

attached with an accessory 11, the airflow emitted from the air outlet 122 passes through the accessory 11 and then flows to the target object for drying.

[0018] The control module 1213 is configured to control the operation of the airflow generating element 124 and the heating assembly 125, such as changing the rotation speed of the motor in the airflow generating element 124 to achieve a desired value of airflow speed, or changing the heating power of the heating assembly 125 to achieve a desired value of airflow temperature. The second communication module 1212 is configured to communicate with the accessory 11 and receive data from the accessory 11, and the control module 1213 selects, adds, deletes, and modifies at least one of one or more operation modes of the drying apparatus 12 based on the data from the accessory 11.

[0019] The one or more operation modes of the drying apparatus 12 comprises different target value of airflow speed and/or airflow temperature. After a user selects an operation mode of the drying apparatus 12, the control module 1213 executes the operation mode, controlling the operation of the airflow generating element 124 and/or the heating assembly 125 in accordance with the target value of the airflow speed and/or the airflow temperature of the operation mode, so that the airflow emitted from the drying apparatus 12 has the corresponding airflow speed and/or airflow temperature.

[0020] For ease of illustration in the following description, the maximum value of the airflow speed of the drying apparatus 12 is set to be S, and the maximum value of the airflow temperature is set to be T. In one embodiment, certain operation mode comprises target value of airflow speed at 100% S, i.e., the airflow speed in that operation mode is at the maximum value. Another operation mode comprises target value of airflow speed at 50% S and target value of airflow temperature at 50% T, i.e., the airflow speed and the airflow temperature in that operation mode are half of their respective maximum values. The target value in the operation mode may not be limited to a specific constant value, but may be a function of time, ambient situation, etc., or a range with at least an upper limit or lower limit.

[0021] In one embodiment, the operation mode may be in any of the following forms (relevant values are illustrative only):

Operation mode A: the target value of airflow speed is 50% S, with no restriction on airflow temperature.

Operation mode B: the target value of airflow temperature is 50% T and the target value of airflow speed is 100% S.

Operation mode C: the target value of airflow temperature is 50% T for duration t1 time, and then switches to 30% T for duration t2 time; the target value of airflow speed is 50% S for duration t_1 time and then switches to 70% S for duration t_2 time. In the operation mode C, the operation of the drying apparatus 12 has two phases in sequence: a first phase lasting t_1 time and a second phase lasting t_2 time. The two phases have different airflow speeds and airflow temperatures, and the switching of airflow temperature and airflow speed is synchronized. It shall be readily understood that in operation modes similar to operation mode C, the switching of airflow temperature and airflow speed may also be unsynchronized, e.g. the target value of airflow temperature is maintained at 50% T from time t_0 to time t_a, and then switches to 30% T from time t_a until the drying apparatus 12 is switched off; and the target value of airflow speed is maintained at 50% S from time t_0 to time t_b, and then switches to 70% S from time t_b until the drying apparatus 12 is switched off, wherein the t_a moment may be earlier than the t_b moment or later than the t_b moment.

Operation mode D: the target value of airflow speed is 50% S; the target value of airflow temperature is: starting at 100% T and gradually decreasing at a preset rate until 0% T during operation.

Operation mode F: the value of preset function f_1 (t) is the target value of airflow speed and/or airflow temperature, where t is the operating moment, i.e., at different operating moments of the drying apparatus 12, there are different target value of airflow speed and/or airflow temperature. Alternatively, the value of preset function f_2 (x) is the target value of airflow speed and/or airflow temperature, wherein x is any one of the ambient temperature, humidity, or air pressure, i.e., after the drying apparatus 12 detects a change in the ambient temperature, humidity, or air pressure, the target value of airflow speed and/or airflow temperature is changed accordingly. The above-described predetermined function f_1 (t), and the predetermined function f_2 (x) may be any one of a monotonic function, a segmented function, a curve-fitting function, a predetermined table.

Operation mode G: the target value of airflow speed are 50% S, 70% S, and 100% S, and the target value of airflow temperature is any value from 0% T to 100% T. The user can select one of the three target value of airflow speed and adjust the target value of airflow temperature arbitrarily when the drying apparatus 12 is in this operation mode. When the user uses this operation mode of the drying apparatus 12, the user may select one of the three target value of airflow speed and adjust the target value of airflow temperature as she like. In other words, the user has the freedom to adjust airflow temperature and airflow speed in operation mode G.

[0022] When a user turns on and uses the drying apparatus 12, the drying apparatus 12 will be in certain operation mode, and the control module 1213, when executing that operation mode, controls the operation of the airflow generating element 124 and/or the heating assembly 125 in accordance with the target value of airflow temperature and/or airflow speed comprised

therein. It shall be readily appreciated that in some embodiments, the drying apparatus 12 may not have multiple operation modes, for instance, the drying apparatus 12 is a hand dryer, which has only two states, switch on and switch off. The airflow speed and the airflow temperature of the hand dryer during operation after turning on will also be determined and calibrated with corresponding target value during the preliminary design process, and it shall also be understood that its operation mode refers to the switch on state.

[0023] The operation modes mentioned below shall all be understood as described above and explanation of operation modes will not be repeated.

[0024] The accessory 11 is a structure used in conjunction with the drying apparatus 12, and in order to achieve the design purpose of the accessory 11, the drying apparatus 12 needs to operate in a corresponding operation mode configured with an airflow speed and/or an airflow temperature that meet the needs of the accessory 11. In one embodiment, the accessory 11 may function to straighten the hair, and high airflow temperature is required during hair straightening so that the drying apparatus 12 can output an airflow at a high temperature. In another embodiment, the accessory 11 is configured with a deflector structure to disturb airflow to fluff up the hair, and the drying apparatus 12, after attaching this accessory, due to the increase of airflow resistance, will encounter a decrease of internal airflow, and becomes more likely to accumulate heat leading to danger, and therefore the airflow temperature of the drying apparatus 12 needs to be reduced. In another embodiment, if the accessory 11 is mainly for hair care, and the hair shall have a high moisture content after drying with a low speed airflow and a low temperature airflow. The drying apparatus 12 needs to emit an airflow having a low airflow speed and low airflow temperature.

[0025] In short, after attaching the accessories 11, the drying apparatus 12 may need to adjust to a particular operation mode or certain operation modes to emit an airflow with a particular level of airflow temperature and airflow speed; or the drying apparatus 12 may need to avoid being operated in a particular operation mode or certain operation modes to avoid emitting an airflow with a particular level of airflow temperature and airflow speed. The number of accessories 11 may be a plurality, and each of the accessories 11 has a different effect on changing the airflow, and after different accessories 11 are attached to the drying apparatus 12, the drying apparatus 12 also needs to change operation mode corresponding to the accessories 11 attached.

[0026] The drying apparatus 12 provided in the above embodiments of the present disclosure, after attaching an accessory 11, obtains data from the accessory 11 via a second communication module 1212, and a control module 1213 selects, adds, deletes, or modifies at least one of a plurality operation modes based on the data from the accessory 11. Wherein, "selecting" means selecting one of the one or more operation modes, and the drying apparatus 12 is switched to operate in the operation mode selected. "Increasing" means increasing one or more operation modes, for instance, the drying apparatus 12 has three operation modes, which then is increased to five operation modes after attaching the accessory 11. "Deleting" means deleting one or more operation modes from one or more operation modes, for instance, the drying apparatus 12 has five operation modes, and after attaching the accessory 11, which is then reduced to only three operation modes by removing two operation modes. "Modifying" means modifying one or more of the operation modes, for instance, when the drying apparatus 12 is not attached to the accessory 11, one of the operation modes comprises target value of airflow speed at 50% S. After the accessory 11 is attached, the target value of airflow speed of the operation mode is modified to be at 60% S.

[0027] By selecting, adding, deleting, or modifying at least one of one or more operation modes, the one or more operation modes of the drying apparatus 12 can be changed to adapt to the corresponding accessory(ies) 11. In particular, users who have purchased the drying apparatus 12 can continue obtaining new data from the accessories 11 released later on after purchasing, and the drying apparatus 12 will be adapted to the new accessories 11.

[0028] As shown in FIGS. 1 and 4, in some embodiments, an accessory 11 comprises of a main body, a first storage module 114, and a first communication module 115 configured on the main body. The main body of the accessory 11 is configured to be attached to the drying apparatus 12 in a removable manner, and the main body allows an airflow emitted from the drying apparatus 12 to pass through. The first communication module 115 is configured to communicate with the drying apparatus 12 to transmit data stored in the first storage module 114 to the drying apparatus 12, and the drying apparatus 12, after receiving the data, selects, adds, deletes, and modifies at least one of one or more operation modes of the drying apparatus 12.

[0029] The accessory 11, in order to achieve its design purpose, requires the drying apparatus 12 to operate in a corresponding operation mode. The drying apparatus 12 may need to be adapted to a particular one or more operation modes to provide specific levels of airflow temperature, airflow speed, etc., or it may need to avoid being in a particular one or more operation modes to avoid providing specific level of airflow temperature, airflow speed, such as airflow temperature exceeding a threshold value, etc. In prior arts, when developing an accessory 11, the accessory must be adapted to preexisting operation modes of a corresponding drying apparatus 12, which is limited by the combination of airflow temperatures and/or airflow speed that are provided by these operation modes. The accessory 11 in the embodiment of the present disclosure is not limited to the preexisting operation modes of the drying apparatus 12 during the development and optimization process. A

new accessory 11 can be optimized or designed in any combination of airflow temperature and/or airflow speed, and the preexisting operation modes can be optimized in order to upgrade the data in the drying apparatus 12. After structural design of the accessory 11 is completed, the corresponding data is stored in the first storage module 114 of the accessory 11, so that the drying apparatus 12, after receiving it from the accessory 11, may select, add, delete, or modify at least one of one or more operation modes thereof, so as to adapt to the accessory 11. The implementation principle can also be referred to the relevant description of the drying apparatus 12 previously, which will not be repeated herein.

[0030] As shown in FIGS. 1 and 4, in some embodiments of the present disclosure, a drying assembly 10 comprises the accessory 11 described above or at any location below, and the drying apparatus 12 described above or at any location below. The number of accessories 11 in the drying assembly 10 may be a plurality, each storing the same or different data. The specific structure and technical effects of the drying assembly 10 can refer to the description in the preceding paragraphs. By selecting different accessories 11 to attach to the drying apparatus 12, the drying apparatus 12 is configured to receive different data.

[0031] As shown in FIGS. 1, 4, and 17, in some embodiments of the present disclosure, a method for controlling a drying apparatus comprises the steps of:

S10: receiving data from an accessory 11, which is attached to an air outlet 122 of a drying apparatus 12 and allows an airflow to pass through;

After the accessory 11 and the drying apparatus 12 are mutually attached, a first communication module 115 of the accessory 11 and a second communication module 1212 of the drying apparatus 12 can perform data communication, and the drying apparatus 12 receives the data stored in a first storage module 114 of the accessory 11.

S20: At least one of selection, addition, deletion, modification of a plurality operation modes of the drying apparatus 12 is performed based on the data from the accessory 11. The operation mode comprises target value of airflow speed and/or airflow temperature.

[0032] The second communication module 1212 receives the data from the accessory 11 and transmits it to a control module 1213 electrically connected thereto. The control module 1213 may select, add, delete, or modify at least one of one or more operation modes of the drying apparatus 12 based on the data from the accessory 11.

[0033] In the above-described control method, the drying apparatus 12 is configured to perform at least one of selection, addition, deletion, or modification of the one or more operation modes based on the data from the accessory 11, so that the drying apparatus 12 is capable of changing its operation modes by the coupled accessory 11, so as to make its operation modes adaptable to the accessory 11. The detailed realization process and related technical effects may also be referred to as described hereinabove.

[0034] The control method in some embodiments, as shown in FIGS. 17 and 18, after step S20, i.e., At least one of selection, addition, deletion, modification of a plurality operation modes of the drying apparatus 12 is performed based on the data from the accessory 11, further comprises:

S301: Executing the operation mode to control operation of an airflow generating element 124 and/or a heating assembly 125 of the drying apparatus 12 in accordance with target value of airflow speed and/or airflow temperature.

[0035] After the drying apparatus 12 receives the data from the accessory 11, it performs at least one of selection, addition, deletion, or modification of the one or more operation modes. The control module 1213 selects one from the one or more operation modes for execution, and controls the operation of the airflow generating element 124 and/or the heating assembly 125 in accordance with target value of airflow speed and/or airflow temperature.

[0036] In some embodiments, the operation mode selected for execution by the control module 1213 is associated with an operation of selection, addition, deletion, or modification of the one or more operation modes based on the data from the accessory 11. For instance, an operation mode selected based on the data from accessory 11, an operation mode added based on the data from accessory 11, and an operation mode modified based on the data from accessory 11 may be executed.

[0037] In some embodiments, the operation mode selected for execution by the control module 1213 is not associated with an operation of selection, addition, deletion, or modification of the one or more operation modes based on the data from the accessory 11. For instance, after one or more operation modes are added based on the data from Accessory 11, the control module 1213 does not execute these operation modes added, instead selects one of the other operation modes to execute. Alternatively, after an operation mode is modified based on the data from accessory 11, but the operation mode is not executed immediately. When a user selects the operation mode when using the drying apparatus 12 later on, even if the accessory 11 is not attached, the control module 1213 will control the operation of the airflow generating element 124 and/or the heating assembly 125 in accordance with the modified target value for the airflow speed and/or the airflow temperature,

[0038] As shown in FIGS. 2 and 7, the drying apparatus 12 provided in some embodiments of the present disclosure further comprises a radiation assembly 123 for generating infrared radiation, and the control module 1213 is configured to control the operation of the radiation assembly 123. Accordingly, the operation mode of the drying apparatus 12 comprises target value of at least one of airflow speed, airflow temperature, and radiation

intensity. The radiation assembly 123 is configured to act on the target object by projecting infrared radiation, thereby increasing the drying efficiency by heating the target object. The control principle of the radiation assembly 123 is similar to that of the aforementioned airflow generating element 124 and heating assembly 125, and is also controlled by the control module 1213. The control module 1213 is configured to turn the radiation assembly 123 on or off and adjust its operating power according to the target value of the radiation intensity of the operation mode, so that the radiation intensity of the radiation assembly 123 meets the target value of the operation mode. The change of the radiation intensity in the operation mode may be referred to the aforementioned airflow temperature/airflow speed change, and the target value of the radiation intensity may be a constant value, or a function of time, ambient situation, etc., or a range with at least an upper limit or lower limit. The control principle of the radiation assembly 123 is not substantially different from that of the airflow generating element 124 and the heating assembly 125. In the operation modes referred above, or anywhere in the following, the target value of the radiation intensity may also be comprised. When the control module 1213 controls the airflow speed and airflow temperature of the drying apparatus 12 according to the operation mode mentioned above and below, it is also configured to control the radiation intensity.

[0039] Similarly, in some other embodiments not shown, the drying apparatus 12 may also have functions such as emitting negative ions, providing hair care essential oils, etc., which are implemented by the relevant structures. These functions may also be set with target value in the corresponding operation modes, and the control principle is not substantially different from that of the airflow generating element 124 and the heating assembly 125, and the control principle described anywhere in the above or the following can also be adopted.

[0040] Accordingly, the control method provided in accordance with embodiments of the present disclosure, as shown in FIGS. 17 and 19, in step S20, i.e., At least one of selection, addition, deletion, modification of a plurality operation modes of the drying apparatus 12 is performed based on the data from the accessory 11, further comprises:

S302: executing the operation mode, wherein the operation mode comprising target value of at least one of airflow speed, airflow temperature, and radiation intensity; and controlling operation of at least one of an airflow generating assembly, a heating assembly, and a radiation assembly in accordance with the target value of at least one of airflow speed, airflow temperature, and radiation intensity.

[0041] Step S302 is similar to the aforementioned step S301, and the related technical solutions and technical effects will not be repeated.

[0042] As shown in FIG. 1, in some embodiments of the present disclosure, an accessory 11 is configured with a first storage module 114 storing one or more sets of control data. The control data comprises target value of airflow speed and/or airflow temperature corresponding to a new operation mode. To avoid confusion, the operation mode corresponding to the control data of the accessory 11 is referred to as the "new operation mode" in the following description, and the preset operation mode of the drying apparatus 12 itself is referred to as the "preset operation mode".

[0043] For the accessory 11, the one or more sets of control data stored therein correspond to one or more operation modes added. The target value of airflow speed and/or airflow temperature of the operation modes added is determined by the accessory 11 during its design process, and is not limited by the preset operation modes of the drying apparatus 12, which enables the development of more complex, more intelligent, and more niche accessories 11 to be more specifically adapted to different people.

[0044] In some specific embodiments, the control data from the accessory 11 comprises target value of at least one of airflow temperature, airflow speed, and radiation intensity. In other words, after the accessory 11 is attached to the drying apparatus 12, the drying apparatus 12 may also be capable of controlling radiation intensity in the new operation modes obtained based on the data from the accessory 11. For instance, if some accessories 11 have relatively low radiation pass through rate, and if the radiant intensity of infrared radiation generated by the radiant assembly 123 is high, the infrared radiation may heat the accessory 11 to an excessively high temperature, thereby damaging the accessory 11 or scalding the user. In this case, the target value of the radiation intensity in the control data from the accessory 11 will be a smaller value or zero (i.e., directly switched off). It shall be noted that, in other embodiments, the drying apparatus 12 does not comprise the radiation assembly 123, and the control data from the accessory 11 comprises the target value of airflow speed, airflow temperature, and radiation intensity. After the accessory 11 is attached to this drying apparatus 12, although the drying apparatus 12 may not execute the corresponding operation mode in full accordance with the control data from the accessory 11, it may still execute the corresponding operation mode in accordance with the airflow speed and/or the airflow temperature comprised therein. In other words, whether or not the accessory 11 comprises the target value of radiation intensity, it is able to be adapted to any drying apparatus 12. Therefore, the control data from the accessory 11 described above and below may or may not comprise the target value of radiation intensity.

[0045] In some specific embodiment, the accessory 11 itself is also configured to alter the radiation emitted by the radiation assembly 123. For instance, the housing of the accessory 11 can be a semi-transparent structure, or the accessory 11 comprises a radiation filtering section. They are configured to alter the radiation by changing its intensity, change its color, reduce its pass-through rate at specific frequency, or so on. Then the control data, in

accordance with the design purpose of radiation filtering of the accessory 11, may comprise the corresponding radiation intensity.

[0046] Accordingly, as shown in FIG. 2, in some embodiments of the present disclosure, a drying assembly 10 comprises a drying apparatus 12 and one or more accessories 11. The drying apparatus 12 comprises a radiation assembly 123, with at least a portion of the accessory 11 forming a filtering section configured to alter at least one parameter of radiation, e.g., reducing radiation intensity, changing its color, reduce its pass-through rate at specific frequency and so on. At least one parameter of infrared radiation emitted from the drying apparatus 12, after passing through the accessory 11, is altered. In more specific embodiments,

the main body of the accessory 11 may be made of a semi-transparent material, or may comprise a radiation filtering section corresponding to the position of the radiation emitted from the drying apparatus 12 and having certain optical properties. Accordingly, target value of the radiation intensity can also be written into the control data of such accessory 11, so that the drying apparatus 12, after attachment of the accessory 11, emits infrared radiation in accordance with its design requirements, and aligns with the optical properties of the accessory 11 to achieve the predetermined design function.

[0047] There is one or more the accessories 11 in the drying assembly 10, with each accessory 11 configured with a different effect of altering the airflow. The one or more accessories 11 comprise different control data. Selection of different accessories 11 to be attached to the drying apparatus 12 adds different one or more operation modes to the drying apparatus 12, enabling the drying apparatus 12 to receive the operation modes matching the accessories 11.

[0048] In more specific embodiments, each accessory 11 in the drying assembly 10 is configured to alter at least one parameter of the airflow, such as the number of air outlets, the angle of the airflow, the shape of the airflow field, the shape of the airflow, the direction of the airflow, the airflow speed, and so on. For instance, when the accessory 11 converges the airflow into a state with a smaller radius and a high speed, it can achieve the purpose of straightening the hair when drying the hair. When the accessory 11 disperses the airflow into one or more strands with different directions, it can achieve the purpose of making the hair fluffier as a whole by drying the hair in different directions. Different drying effects can be achieved by selecting different accessories 11 to be attached to the drying apparatus 12.

[0049] It should be noted that, in different embodiments, the drying apparatus 12 itself may have various models and configurations. For instance, some drying apparatus 12 has a radiation assembly 123, and some drying apparatus 12 does not have a radiation assembly 123. If the control data from an accessory 11 comprises target value of radiation intensity, the control module 1213 controls the radiation intensity of the radiation assembly 123 to reach the target value after attaching the accessory 11 to the drying apparatus 12 having the radiation assembly 123; and if the drying apparatus 12 does not have the radiation assembly 123, after attaching of the accessory 11, the control module 1213 does not execute the target value of the radiation intensity in the control data, or the control module 1213 executes in accordance with the same strategy. Due to the lack of the actual executing assembly (i.e., the radiation assembly 123), the target value of the radiation intensity will not be executed in the operation of the drying apparatus 12. In other words, the type of data from the accessory 11 may not affect the configuration of the various drying apparatus 12.

[0050] As shown in FIGS. 1 and 4, in some embodiments of the present disclosure, the drying apparatus 12 receives one or more sets of control data by communication after attaching the accessory 11, and adds one or more new corresponding operation modes. In other words, the drying apparatus 12, after attaching the accessory 11, may execute operation modes including: one or more preset operation modes and one or more added operation modes.

[0051] Accordingly, as shown in FIGS. 1, 17, and 20, in some embodiments of the present disclosure, the control method comprises, in step S20, at least one of selection, addition, deletion, modification of a plurality operation modes of the drying apparatus 12 is performed based on the data from the accessory 11, further comprises:

S211: If the data from the accessory 11 comprises one or more sets of control data, the control data comprises target value of airflow speed and/or airflow temperature.

S212: then the one or more operation modes are added based on one or more sets of the control data.

[0052] The target value of airflow speed and/or airflow temperature required by the accessory 11 are pre-written into the first storage module 114 as control data. An accessory 11 newly released after the drying apparatus 12 is sold may still be adapted to the drying apparatus 12, and makes the drying apparatus 12 operate in the operation mode added in accordance with the accessory 11. In other words, after users purchase the drying apparatus 12, they may purchase new accessories 11 in the future to add new operation modes to the drying apparatus 12.

[0053] In addition, in another embodiments, the drying apparatus 12 may have other functions in addition to emitting heated airflow, such as emitting negative ions, providing hair care essential oils, and so on. These functions are realized by corresponding structures, and the accessory 11 may also be adapted on demand. After target value for controlling these functions is correspondingly written into the control data, a corresponding operation mode may be adapted when the accessory 11 is attached to the drying device 12 with these functions. However, it shall be noted that since the drying apparatus

12 may have various models and different functions, the control data from the accessory 11 may comprise target value that cannot be reached by the drying apparatus 12.

[0054] For instance, if the target value of the airflow speed exceeds the maximum value of the airflow speed of a certain drying apparatus 12, after the accessory 11 is attached to the drying apparatus 12, the drying apparatus 12 can still operate at an airflow speed closest to the target value of the airflow speed. That is, the drying apparatus 12 can still operate according to its maximum value of the airflow speed. In other words, the size and type of the target value in the control data from the accessory 11 does not limit the type of the drying apparatus 12 adapted to it. The drying apparatus 12 can execute part of the target value in the control data from the accessory 11.

[0055] In prior arts, a drying apparatus, such as a hair dryer, only provides one or more operation modes or combination of functions. Even if there are more optimized operation modes, such as gradual change of airflow temperature or airflow speed over time, and specific combinations of airflow speed and airflow temperature, users need to operate the above functions with more complicated operations, which has a very high learning threshold. It is especially difficult to provide tailored operation modes to people with special hair types, such as curly hair, dyed hair, and hard hair.

[0056] In the embodiments described above, the drying apparatus 12 is configured to receive new operation modes from the accessory 11 after attaching the accessory 11. Writing the control data into the accessory 11 provides highly personalized and intelligent operation modes. In particular, the accessory 11 may determine an optimal airflow temperature, airflow speed, operating time, ambient temperature, humidity, and other control factors through pre-experimentation, simulation, and the like, so as to provide personalized and intelligent control strategies. When using the drying assembly 10, users do not need to operate in a complicated manner to select the corresponding airflow temperature and/or airflow speed, allowing them to have a more intelligent user experience.

[0057] For instance, the accessory 11 specially introduced for people with curly hair, through experimental test, first has the most suitable operation mode for curly hair determined, and then the optimal solution of the aerodynamic structure design of the accessory 11 found after calibrating changes in airflow temperature and airflow speed at each stage of hair drying. Users with curly hair can directly purchase the accessory 11 and use it with the drying apparatus 12. The drying apparatus 12 operates in the new operation modes that is most suitable for curly hair. The users do not need any additional learning costs, greatly improving its user experience.

[0058] In addition, professional hairdressers have professional hair dressing skills and are good at professional hairdressing operations. Using the same hair dryer, hairdressers and ordinary users often get completely different results after drying hair. Among them, the control of airflow temperature and airflow speed is an important part of professional hairdressing operations. Therefore, during the design process, the control of airflow temperature and airflow speed by hairdressers during the hair drying process may also be referenced to and written as control data into the accessory 11, so that ordinary users may use the drying apparatus 12 at home with the accessory 11 to achieve, to a certain degree, the hair dressing effect of professional hairdressers.

[0059] The control method, in some embodiments, as shown in FIGS. 20 and 21, further comprises: after step S212, i.e., after adding one or more operation modes based on the one or more sets of control data:

S213 Execute the operation modes added.

[0060] In step S213, the control module 1213 directly executes the operation modes added, that is, the new operation modes corresponding to the control data from the accessory 11. It is also understood that among the multiple operation modes that the drying apparatus 12 executes, the execution priority of the new operation modes is higher, and the execution priority of the preset operation modes is lower. If there is a new operation mode, the new operation mode will be executed, and if there is no such operation mode, the preset operation mode will be executed.

[0061] By controlling the drying apparatus 12 according to the control data stored in the accessory 11, the drying apparatus 12 may automatically switch to the operation mode adapted to the accessory 11 to which it is attached. This not only eliminates the need for users to manually select process, reduces users' learning and operating costs, and avoids risk of wrong selection of operation modes that are not adapted to the accessory 11. Moreover, more complex and refined combinations of airflow speed, airflow temperature, and radiation intensity may be set in the accessory 11 to provide more refined and intelligent operation mode adapted to special drying needs. The optimization and design of the accessory 11 is not limited by the parameter combination of airflow speed, airflow temperature or radiation intensity preset before the drying apparatus 12 leaves the factory. The new accessory 11 may also be adapted to the sold-out drying apparatus 12, and the drying apparatus 12 attached to the new accessory 11 may automatically operate in the new operation mode corresponding to the new accessory 11.

[0062] As shown in FIGS. 1 and 4, in some embodiments of the present disclosure, an accessory 11 has a first storage module 114 configured to store identification information, the identification information corresponding to at least one of one or more preset operation modes of the drying apparatus 12.

[0063] As shown in FIGS. 1 and 4, in some embodiments of the present disclosure, when the drying apparatus 12 is attached to an accessory 11 that stores the identification information, after the two establish communication, the control module 1213, upon receiving the identification information, selects, from the one or more

preset operation modes, one operation modes for execution according to the preset correspondence relationship. The drying apparatus 12 is configured to automatically switch to the operation mode according to the accessory 11.

[0064] As shown in FIGS. 1 and 4, in some embodiments of the present disclosure, through different accessories 11 attached to the drying apparatus 12, a drying assembly 10 is configured to automatically switch to an operation mode corresponding to the accessory 11 after the drying apparatus 12 receives identification information.

[0065] Accordingly, as shown in FIGS. 1, 17, and 22, in some embodiments of the present disclosure, the control method, in step S20, i.e., At least one of selection, addition, deletion, modification of a plurality operation modes of the drying apparatus 12 is performed based on the data from the accessory 11, comprises:

S221: if the data from the accessory 11 comprises identification information;

S222: then at least one of the one or more operation modes pre-stored is selected based on the identification information after read, and executed.

[0066] For instance, the drying apparatus 12 has three preset operation modes and corresponding codes: 00-preset operation mode A, 01-preset operation mode B, and 11-preset operation mode C. When the identification information read by the control module 1213 of the drying apparatus 12 from the accessory 11 is 01, the preset operation mode B is selected from the three preset operation modes and executed.

[0067] As shown in FIG. 1, in some embodiments of the present disclosure, the accessory 11 is configured with a first storage module 114 storing display information, which comprises characters, images, video animations, text, and other displayable information content. In a particular embodiment, the display information may be the name of the accessory 11, such as "Styling Nozzle". The display information may also comprise multiple languages for easy recognition of users in various countries and regions.

[0068] As shown in FIG. 1, in some embodiments of the present disclosure, when the drying apparatus 12 establishes communication with the accessory 11 attached, the control module 1213 receives the display information from the accessory 11, and directly displays the display information.

[0069] In more specific embodiments, the drying apparatus 12 further comprises a display module 128, which may be a structure such as a display screen, for intuitively displaying various text or image information. When the control module 1213 receives the display information, the display information is displayed directly through the display module 128, for instance, displaying the text: "Styling Nozzle". In other embodiments, the drying apparatus 12 may also communicate with a smart end device, such as a cell phone, to display the display information on its screen.

[0070] In addition to displaying the display information, the display module 128 may also display relevant operating information of the drying apparatus 12, such as the airflow speed, the airflow temperature, the radiation intensity of the current operation mode, or the power-on time, whether or not the accessory 11 is attached, the name of the accessory 11 and other information. For instance, the name of current operation mode is displayed as "Soft Airflow Mode", and/or various target values comprised in the current operation mode are displayed, for instance, the target value of the airflow speed is 50%S, etc. When there are one or more executable operation modes, they are simultaneously displayed on the display module 128 for users' selection operation. When the accessory 11 is not attached, one or more preset operation modes are displayed on the display module 128. When the accessory 11 is attached, one or more operation modes corresponding to the accessory 11 are displayed on the display module 128 to avoid users' mis-selection.

[0071] Accordingly, the control method, in some embodiments of the present disclosure, as shown in FIGS. 17 and 24, after step S10, i.e., after receiving data from an accessory 11, further comprises:

S241: if the data from the accessory 11 comprises display information;

S242: then the display information is displayed on the display module.

[0072] In a specific embodiment, the display module 128 can display at least two types of information: (1) display information, the display information is the current operation mode or the name of the accessory 11 attached. For instance, after the accessory 11 as a smooth nozzle is attached, it is displayed as "Smooth Mode" or "Smooth Nozzle". If the accessory 11 is not attached, it is displayed as "No Accessory 11 Attached". On the one hand, users may be informed of the operation mode of the drying apparatus 12, and on the other hand, users can also confirm whether the drying apparatus 12 correctly recognizes the accessory 11 by comparing the display information on the display module 128 with the accessory 11; (2) current airflow speed, airflow temperature, and radiation intensity. For instance, displaying the numerical value of each metrics in number form, or displaying the proportion of the current airflow, airflow temperature, and radiation intensity to their maximum values in graphic form. In other embodiments, the drying apparatus 12 may also send signals to end devices such as cell phones, tablets, computers, etc., and indicate the above two types of information to the users on the end devices through graphics, text display or voice notification. The users may also input information on the end devices, and select relevant operation modes.

[0073] It should be noted that, in the above embodi-

ments, the control data, the identification information, and the display information stored in the first storage module 114 of the accessory 11 are not mutually exclusive. Both or all three may be stored in the first storage module 114 of the accessory 11 at the same time. In a more specific embodiment, the data in the first storage module 114 may be reserved for identification characters, for instance, the first two digits of the data are identification character bits. If the numerical reading of the identification character bits is "01", it indicates that the data is the control data; if the numerical reading of the identification character bits is "02", it indicates that the data is the identification information; If the numerical reading of the identification character bit is "03", it indicates that the data is the display information. Similarly, other data types may also be reserved, for instance, if the numerical reading of the identification character bit is "05", then it indicates that it is a customized accessory 11, and the drying apparatus 12 may operate in any operation modes.

[0074] In some embodiments, the control data of the accessory 11 comprises not only the target value of airflow speed, airflow temperature, and radiation intensity, but also the corresponding names. For instance, the hair may be made smoother after hair drying using a certain accessory 11 with an airflow guide structure, the accessory 11 is named "Smooth Nozzle", and the corresponding operation mode is named "Smooth Mode". Then in the first storage module 114, corresponding to the "Smooth Mode", target values of airflow speed, airflow temperature, radiation intensity, and the name of the operation mode "Smooth Mode" are stored. After communicating with the drying apparatus 12, the control circuit 121 of the drying apparatus 12 reads the first storage module 114 and can not only operate and control the drying apparatus 12 to enter the "Smooth Mode" in accordance with the control data, but also prompt users through graphics, text displays or voice notification that the current operation mode is "Smooth Mode", and/or the currently attached accessory 11 is "Smooth Nozzle". In other embodiments, the accessory 11 can also send signals to end devices such as a cell phones, tablets, computers, etc. Alternatively, after the accessory 11 communicates with the drying apparatus 12, the drying apparatus 12 sends signals to end devices such as cell phones, tablets, computers, etc., and indicates to users through graphics, text display, or voice notification that the current operation mode is "Smooth Mode".

[0075] As shown in FIG. 3, in some embodiments of the present disclosure, the accessory 11 further comprises a first write module 116 configured to write data to the drying apparatus 12 to perform at least one of adding, deleting, and modifying target values in the operation mode of the drying apparatus 12.

[0076] After the accessory 11 is attached to the drying apparatus 12, the first writing module 116 is configured to perform at least one of adding, deleting, and modifying one or more sets of preset operation modes, such as adding new operation modes, deleting one or more preset operation modes, or modifying preset operation modes. For instance, one of the preset operation modes of the drying apparatus 12 comprises target value of airflow speed at S1, however, users have feedback that the operation mode produces excessive noise. After attaching the relevant accessory 11, the first writing module 116 modifies the preset operation mode by setting the target value of the airflow speed to S2, S2 being less than S1 in order to reduce noise. When the users subsequently operate the drying apparatus 12 in the preset operation mode, the airflow has a speed at S2, which reduces noise during usage.

[0077] Accordingly, as shown in FIGS. 3 and 23, in some embodiments of the present disclosure, the control method, in step S20, i.e., at least one of selection, addition, deletion, modification of a plurality operation modes of the drying apparatus 12 is performed based on the data from the accessory 11, specifically comprises:

S231: perform at least one of addition, deletion, and modification on the target values of the one or more operation modes based on the data from the accessory 11.

[0078] When addition, deletion, and modification on target value of one or more preset operation modes of the drying apparatus 12 as described above is performed, the target value of a certain preset operation mode may be added, deleted or modified. For instance, a certain preset operation mode comprises only the target value of airflow speed at S1, and this target value is increased based on the data from the accessory 11, which, afterwards, comprises target value of airflow speed at S1 and airflow temperature at T1. Alternatively, one or more target value in a preset operation mode may be deleted. Alternatively, one or more target value in one of the preset operation modes may be modified.

[0079] As shown in FIG. 3, in some embodiment of the present disclosure, the drying apparatus 12 further comprises a second storage module 1211 configured to store one or more sets of operation modes (i.e., preset operation modes), and a control module 1213, upon reading the one or more preset operation modes in the second storage module 1211, select one for execution. The second storage module 1211 is configured in the drying apparatus 12, and its data may be pre-written during the production of the drying apparatus 12. Alternatively, the one or more sets of preset operation modes may be written by firmware upgrade or the like through the Internet, computers, smart terminals, mobile disks, etc. In the description above and below, selection, addition, deletion, or modification on one or more operation modes or target value in these operation modes can all be understood as read and write operation on the second storage module 1211.

[0080] In some embodiments, the preset operation modes stored in the second storage module 1211 comprise two parts. One part comprises target value of airflow speed, airflow temperature, or radiation intensity, and the

other part comprises corresponding name. When the drying apparatus 12 operates in the operation mode, it indicates to users the name of the current operation mode through graphics, text displays, or voice notification. In other embodiments, the accessory 11 may also send signals to end devices such as cell phone, tablets, computers, etc., indicating to users of the end devices the name of the current operation mode through graphics, text displays, or voice notification.

[0081] As shown in FIG. 3, in some embodiments, the drying apparatus 12 further comprises an operation module 127. The operation module 127 may be a structure such as a button, a touch screen, a microphone (with voice recognition), a camera (with image recognition), or the like, configured to generate different electrical signals in response to users' operation. After receiving the electrical signals, the control module 1213 selects one of the one or more operation modes for execution.

[0082] In some embodiments, the operation module 127 of the drying apparatus 12 is configured to, besides selecting an operation mode from one or more operation modes in response to an operation, adjust or switch target value of at least some of the operation modes by users within a range.

[0083] For instance, a certain operation mode with target value of airflow speed, airflow temperature has its target value of the airflow temperature set adjustable. When a user operates the drying apparatus 12 and this operation mode is selected, the target value of the airflow temperature can be adjusted through the operation module 127. Specifically, the target value of the airflow speed and the airflow temperature corresponding to the operation mode are displayed on the display module 128 of the drying apparatus 12, and the user may adjust them through the operation module 127 by referring to the value displayed on the display module 128 based on temperature sensed by his/her body. Alternatively, a certain operation mode may comprise one or more target value of airflow speed, the user may switch between the one or more target value of the airflow speed through the operation module 127 during usage. It is easily understood that such adjustable operation modes can be either preset operation modes or new operation modes.

[0084] In a specific embodiment, the drying apparatus 12 itself has one or more preset operation modes stored in the second storage module 1211. When the accessory 11 is not attached, the user may select one from these preset operation modes. When the accessory 11 with one or more sets of control data is attached, the user may no longer select the preset operation modes of the drying apparatus 12, instead may select one or more operation modes pre-stored in the accessory 11. In a more specific application embodiment, the display module 128 of the drying apparatus 12 displays name of the relevant operation mode, such as "Soft Airflow Mode", or target value or its level in the operation mode, such as airflow speed at 50%S. When there is one or more operation modes, they are simultaneously displayed on the display module 128 for the user to select through operation. When the accessory 11 is not attached, the display module 128 displays the preset operation modes of the drying apparatus 12 for selection, for instance, "Fast Mode", "Styling Mode", "Care Mode". When the accessory 11 is attached, the operation modes displayed on the display module 128 are switched to one or more operation modes corresponding to the accessory 11, such as "Low-temperature Diffusion Mode", "Medium-temperature Care Mode", "High-temperature Styling Mode". The "Fast Mode", "Styling Mode", and "Care Mode" are no longer displayed to prevent the user from selecting incorrect operation modes that do not adapt to the accessory 11, which, for instance, may cause the local overheat of the drying assembly 10 and harm the user.

[0085] In some embodiments, when the accessory 11 is not attached, the user can only select from one or more preset operation modes through the operation module 127. After the accessory 11 is attached, the user can only select from one or more newly added operation modes through the operation module 127, in order to avoid misoperation causing the drying apparatus 12 to enter wrong operation modes.

[0086] As shown in FIG. 3, in some embodiments, the drying apparatus 12 further comprises a second writing module 1215 configured to write data to or delete data in the first storage module 114 to perform at least one of adding, deleting, and modifying data in the first storage module 114. For instance, a new set of control data may be added, an original set of control data may be deleted, or an original set of control data may be modified. Similarly, at least one of adding, deleting, or modifying display information and identification information may also be performed. Taking the control data as an instance, a group of control data of the accessory 11 comprises target value of airflow temperature at T1. When a user operates the drying apparatus 12 to which the accessory 11 is attached, the accessory 11 fails to achieve the expected effect due to insufficient airflow temperature. At this time, the second writing module 1215 in the drying apparatus 12 may modify the target value of the airflow temperature in the control data to T2 through writing to the first storage module 114, with the value of T2 being greater than T1, so that when the drying apparatus 12 is attached to the adapted accessory 11, the drying apparatus 12 emits an airflow with temperature at T2 in this operation mode. In some embodiments, the drying apparatus 12 may communicate with end devices (e.g., cell phones, tablets, cloud servers, computers) through wireless (e.g., Bluetooth, WIFI, RFID, ZigBee, wireless network) or wired (e.g., USB data cables, network cables) connection to receive relevant data and to prompt the user to attach certain specified accessories 11 to the drying apparatus 12 11 to upgrade data (i.e., one of addition, deletion, or modification) of these accessories 11.

[0087] As shown in FIG. 3, in some embodiments of the present disclosure, the drying assembly 10 comprises

one or more accessories 11 and a drying apparatus 12 as described above. The accessories 11 are configured to read data in and write data to the drying apparatus 12 through a first writing module 116, and a second writing module of the drying apparatus 12 is configured to read data in and write data to the accessories 11 to upgrade data mutually (i.e., one of addition, deletion, or modification).

[0088] As shown in FIG. 3, in some embodiments, the drying assembly 10 may also comprise a writing device (not shown). The writing device is configured to communicate with the accessories 11 and/or the drying apparatus 12, and perform at least one of addition, deletion, or modification of data in the accessories 11 and/or the drying apparatus 12. For instance, the writing device is a smart terminal comprising a touch screen, keyboard, etc., such as a cell phone, a tablet, a computer, and other end devices, such that a user does not need to purchase additional hardware devices. After the writing device communicates with the accessories 11 and the drying apparatus 12, it is configured to display target value in the corresponding operation modes, and the user can directly do data browsing and editing on the writing device, such as editing target value of airflow temperature, airflow speed, and radiation intensity of some operation modes and generating relevant control data, or alternatively, downloading data packets from a network through the writing device and add, delete, and modify at least one of the operation modes of the accessories 11 and/or the drying apparatus 12.

[0089] In some other specific embodiments, the writing device itself cannot edit or browse data, it only provides data storage and communication read/write functions. After the writing device communicates with end devices such as cell phones, tablets, computers, etc., users can browse and edit the data on the end devices, such as obtaining official upgrade data package, or granting permissions of user customization to enable users to edit target value of airflow temperature, airflow speed, or radiation intensity and generate relevant control data. After the writing device communicates with the accessory 11 and the drying apparatus 12, it reads or writes the first storage module 114 or the second storage module 1215 according to internal data. In this way, the accessory 11 and the drying apparatus 12 do not need to set up a communication structure adapted to the end devices. The writing device, the accessory 11, and the drying apparatus 12 adopt the same communication method to communicate with each other, which reduces additional communication structure cost.

[0090] As shown in FIG. 1, in some embodiments of the present disclosure, the accessory 11 and the drying apparatus 12 may be connected electrically through wires for data communication. For instance, the first communication module 115 may comprise contacts arranged an outer end face of the main body of the accessory 11. After the accessory 11 is attached to the drying apparatus 12, the contacts, which are configured at corresponding locations of the drying apparatus 12, are connected through contacting to establish an electrical connection for data communication between the accessory 11 and the drying apparatus 12. The first communication module 115 may comprise a plug or a socket, to be used together with another socket or plug of the drying apparatus 12, to establish an electrical connection when they are attached to each other. The first communication module 115 may also comprise a data cable. After the accessory 11 is attached to the drying apparatus 12, the data cable is plugged into the reserved data port of the drying apparatus 12 to establish an electrical connection between the two.

[0091] In other embodiments, the accessory 11 may also comprise one or more portions that can be either coupled or detached, which comprises at least a main body and a storage section. The storage section is configured with a first storage module 114, and the storage section is detachably coupled to the main body. The accessory 11 may be sold, transported, and stored in an assembled state. When in use, the main body of the accessory 11 is attached to the drying apparatus 12. The storage section is detached from the main body and coupled to the drying apparatus 12 at a corresponding location of, and communicates with the drying apparatus 12 in a wired or wireless manner.

[0092] Accordingly, as shown in FIG. 1, in some embodiments of the present disclosure, the second communication module 1212 of the drying apparatus 12 may also adopt the same or corresponding manner as the first communication module 115 for wired communication between the drying apparatus 12 and the accessory 11. For instance, the second communication module 1212 may comprise at least one of a contact, a plug, and a data cable, with details not be repeated here.

[0093] As shown in FIG. 1, in some embodiments of the present disclosure, the accessory 11 may communicate with the drying apparatus 12 wirelessly. For instance, the first communication module 115 is a Bluetooth module, a ZigBee module, a WIFI module, a mobile network module, etc. This may eliminate the need to set up a structure for wired communication, thereby reducing installation operation and structural cost. Moreover, there may be fewer restriction on the attachment between the accessory 11 and the drying apparatus 12. After attachment, the accessory 11, subject to more degrees of freedom relative to the drying apparatus 12 to a certain extent, may be adjusted, for instance, by rotating, sliding, etc., to adapt to more use scenarios.

[0094] Accordingly, as shown in FIG. 1, in some embodiments of the present disclosure, the drying apparatus 12 may communicate with the accessory 11 wirelessly. For instance, the second communication module 1215 is a Bluetooth module, a ZigBee module, a WIFI module, a mobile network module, etc., adopting the same wireless communication method as the first communication module 115, as long as matching between the two is achieved. The relevant content will not be repeated

here.

[0095] Accordingly, as shown in FIGS. 17 and 25, in some embodiments of the present disclosure, the control method, prior to step S10, i.e., receiving data from an accessory 11, further comprises:

S01: verify whether the drying apparatus 12 is in successful communication with the accessory 11.

[0096] The drying apparatus 12 and the accessory 11 may transmit data for communication in a wired or wireless manner. Data verification, in-situ detection, communication handshake and other methods may be used to verify whether the drying apparatus 12 communicates with the accessory 11 successfully. In particular, when the two communicate in a wireless manner, the successful communication between the two is verified only when the communication strength meets a threshold.

[0097] S02: If the communication succeeds, the data in the accessory 11 is obtained.

[0098] After successful communication is verified between the drying apparatus 12 and the accessory 11, indicating that the accessory 11 has been correctly attached to the drying apparatus 12, and data communication established between the two meets the threshold, it is possible to proceed to the aforementioned step S10.

[0099] S03: If the communication fails, the one or more operation modes are selected and executed based on an operation signal, and the operation signal is generated by an operation module in response to an operation.

[0100] If the communication between the drying apparatus 12 and the accessory 11 fails, indicating that the accessory 11 is not attached to the drying apparatus 12, i.e., the drying apparatus 12 operates in a manner with no accessory 11 attached, one or more preset operation modes of the drying apparatus 12 is selected and executed based on an operation signal from the operation module 127. It shall be noted that, in some embodiments, the drying apparatus 12 has only one operation mode, then the operation signal may be understood as a power-on signal generated by its power-on button (equivalent to the operation module 127) in response to a power-on operation.

[0101] In more specific embodiments, communication failure between the drying apparatus 12 and the accessory 11 may be either of the following:

(1) The drying apparatus 12 is not attached to the accessory 11, and the user only uses the drying apparatus 12 without the accessory 11 for drying. Or, the accessory 11 fails to attach to the drying apparatus 12 correctly when attaching, resulting in a failure in wired communication, or a failure in wireless communication for not meeting the threshold communication strength due to long distance.

(2) when the drying apparatus 12 is in use with the accessory 11 attached, the accessory 11 is removed during operation. During this process, the drying apparatus 12 switches operation modes. Before the accessory 11 is removed, the accessory 11 is in successful communication with the drying apparatus 12 (corresponding to step S02), and after the accessory 11 is removed, the accessory 11 fails to communication with the drying apparatus 12 (corresponding to step S03).

[0102] When the user uses the drying apparatus 12 and the accessory 11, the action of attaching and removing the accessory 11 alters the attachment status of the accessory 11 while simultaneously altering the operation modes of the drying apparatus 12.

[0103] In a specific application embodiment, the drying apparatus 12 has three preset operation modes: "Fast Mode", "Care Mode, "Cool Mode". The user makes the drying apparatus 12 to operate in "Fast Mode" through selecting a corresponding button, and attaches the accessory 11 during operation. The accessory 11 is a fluffy nozzle, and control data stored corresponds to a new operation mode: "Fluffy Mode". After the accessory 11 communicates successfully with the drying apparatus 12, the operation mode of the drying apparatus 12 automatically switches from the "Fast Mode" to the "Fluffy Mode". After continuous use for some period, the user removes the accessory 11 from the drying apparatus 12, the communication between the accessory 11 and the drying apparatus 12 fails, and the drying apparatus 12 switches back to the "Fast Mode" until the user shuts down the drying apparatus 12.

[0104] In more complex embodiments, the user may also replace one or more accessories 11 when operating the drying apparatus 12, with different data stored in the one or more accessories 11. The control module 1213 may control the drying apparatus 12 according to the foregoing method, which will not be described in detail here.

[0105] In some embodiment, the control method, as shown in FIGS. 25 and 26, in step S01, i.e., verify whether the drying apparatus 12 is in successful communication with the accessory 11, specifically comprises:

S011: The drying apparatus 12 sends out communication request continuously or at a preset frequency.

S012: If feedback in response to the communication request is received from the accessory 11, it is verified that the drying apparatus 12 successfully communicates with the accessory 11.

S013: If no feedback is received, it is verified that the drying apparatus 12 fails to communicate with the accessory 11.

[0106] The communication request and the feedback are a communication process referred as "handshake", that is, a step after establishment of communication and before transmission of information. On the one hand, whether the communication is successful can be verified by the communication request and the feedback. On the other hand, a certain verification can be designed in the

relevant data to prevent counterfeit and fake of accessories 11 from being coupled to the drying device 12 for use.

[0107] The drying apparatus 12 sends out the communication request continuously or at a preset frequency (e.g., 1 Hz). The first communication module 115 of the accessory 11 is designed to send feedback immediately after receiving the communication request. When the drying apparatus 12 receives the feedback, it indicates that the communication between the two is successful, otherwise it indicates that the communication between the two fails.

[0108] In specific embodiments, the communication strength of the communication request of the drying apparatus 12 and/or the feedback of the accessory 11 may be set at a lower value. The two may receive each other's signals only when they are less than a predetermined distance. This prevents the accessory 11 from being mis-verified as in successful communication when it is close to the drying apparatus 12 but not attached to the drying apparatus 12. Moreover, the lower communication strength also contributes to reduction of power consumption.

[0109] In other embodiments, the drying apparatus 12 may have a normal state and an adapted state, and the switching of these two states may be controlled by physical buttons, electrical signals, software control, and other methods. In the normal state, the drying apparatus 12 does not send out communication request, that is, the control module 1213 does not respond to communication of the accessory 11. In this state, whether or not the accessory 11 is attached, the drying apparatus 12 will execute the preset operation mode, which can also be regarded as always in the state of "failed communication" as described above. In the adapted state, the drying apparatus 12 sends out communication and executes the above steps S011 to S013. In this way, the drying apparatus 12 tries to establish communication with the accessory 11 only in the adapted state, preventing the drying apparatus 12 from continuously sending out communication requests, which consumes energy. Moreover, after attaching the accessory 11, the user may still keep the drying apparatus 12 in the normal state without responding to the data from the accessory 11, so that the drying apparatus 12 operates in a preset operation mode.

[0110] More specifically, in some embodiments, as shown in FIGS. 25 and 27, the control method, after step S01, i.e., verify whether the drying apparatus 12 is in successful communication with the accessory 11, further comprises:

S021: if the drying apparatus 12 has successfully communicated with the accessory 11, stop sending out the communication request;

[0111] After the communication is verified as successful, the drying apparatus 12 stops sending communication requests and stops trying to communicate with the accessory 11 to avoiding misidentification of other accessories 11 and also reducing energy consumption.

[0112] S022: If the drying apparatus 12 has failed to communicate with the accessory 11, the communication request is sent out continuously or at a predetermined frequency.

[0113] After the communication is verified as failed, the drying apparatus 12 is in a state of not having established communication with any of the accessories 11, then the communication request is continuously sent to try to establish communication with the accessories 11.

[0114] In the process of wireless communication, it is generally necessary to use antennas to strengthen signal transmission and reception. Accordingly, as shown in FIG. 7, in some embodiments of the present disclosure, an accessory 11 may have a first communication module 115 comprising a first coil 1141 electrically connected to a first storage module 114. The first coil 1141 may constitute an antenna for wireless communication.

[0115] Accordingly, as shown in FIG. 7, in some embodiments of the present disclosure, the drying apparatus 12 may have a second communication module 1212 comprising a second coil 1214 electrically coupled to the control module 1213. The second coil 1214 may also constitute an antenna for wireless communication.

[0116] When the accessory 11 is attached to the drying apparatus 12, the first coil 1141 and the second coil 1214 establish wireless communication and transmit data within a predetermined distance.

[0117] In a specific embodiment, RFID (Radio Frequency Identification) communication technology may be used between the accessory 11 and the drying apparatus 12. the RFID communication technology comprises an electronic tag and a reader, and when the two are within a predetermined distance, the reader may read information stored in the electronic tag. Ther reader may comprise the control module 1213 and the second coil 1214 of the drying apparatus 12, while the electronic tag may comprise the first storage module 114 and the first coil 1141 of the accessory 11. When the location and distance between the accessory 11 and the drying apparatus 12 meet the communication requirements, the first coil 1141 and the second coil 1214 generate current through wireless induction to transmit data, so as to realize wireless communication between the accessory 11 and the drying apparatus 12. Specific communication principle and data transmission process of RFID communication technology will not be described in detail here.

[0118] In addition to realizing wireless communication, the use of RFID communication between the drying apparatus 12 and the accessory 11 also achieve the technical effect that since the electronic tag in RFID communication does not need to be powered, that is, the accessory 11 does not need any energy storage or power supply structure, which makes the accessory 11 capable of storing data at a lower cost without considering data loss issues.

[0119] In the process of wireless communication based on RFID communication technology, the first coil 1141

and the second coil 1214 are both multi-turn wires surrounding along a cylindrical surface. The higher the co-axiality and the closer the distance between the two, the better the data communication effect. Therefore, the ideal attaching method between the accessory 11 and the drying apparatus 12 should meet the following requirements: when the two coils are attached to each other, the first coil 1141 and the second coil 1214 shall be as close as possible and remain coaxial.

[0120] Since the main body of the accessory 11 allows the airflow from the drying apparatus 12 to pass through, the two coils may refer the airflow axis as a design reference axis. The axes of the first coil 1141 and the second coil 1214 substantially coincide with the airflow axis, which ensures that when the accessory 11 and the drying apparatus 12 are attached to each other, the axes of the first coil 1141 and the second coil 1214 coincide to achieve a better communication effect.

[0121] As shown in FIG. 7, in some embodiments of the present disclosure, an accessory 11 has the first coil 1141 which axis is parallel to or coincident with the airflow axis from the drying apparatus 12.

[0122] Accordingly, as shown in FIG. 7, in some embodiments of the present disclosure, the drying apparatus 12 has the second coil 1214 which axis is parallel to or coincident with the output airflow axis.

[0123] In some more specific embodiments, the drying apparatus 12 outputs an airflow from the air outlet 122. The output airflow axis substantially coincides with the axis of the air outlet 122. Accordingly, the second coil 1214 is configured to be parallel to and coincide with the axis of the air outlet 122, which may achieve a structural effect that: when the drying apparatus 12 outputs an airflow, the axis of the second coil 1214 is parallel to or coincides with the output airflow axis.

[0124] On the premise that the first coil 1141 and the second coil 1214 satisfy the above axial relationship, after the accessory 11 is attached to the drying apparatus 12, the axes of the first coil 1141 and the second coil 1214 shall also coincide or be parallel, which can ensure the co-axiality of the two coils and thereby realize a better communication effect.

[0125] Accordingly, as shown in FIG. 7, in some embodiments of the present disclosure, after one or more accessories 11 is attached to the drying apparatus 12, the relationship of the axes of the first coil 1141, the axes of the second coil 1214, and the airflow output axes from the drying apparatus 12 is any one of the following: the three axes are parallel to each other, the three axes are coincident with each other, or any two axes of the three are coincident with each other and parallel to the other, in order to ensure co-axiality between the first coil 1141 and the second coil 1214.

[0126] In some embodiments, the accessory 11 may be attached in a rotatable manner to the drying apparatus 12. Due to different user habits, such as difference between left-handed and right-handed people, users may need to rotate the angle of the accessory 11 when using the drying apparatus 12 and the accessory 11. Therefore, in some embodiments, the accessory 11 is a rotationally symmetric structure with the airflow path as the axis of symmetry. When the accessory 11 and the drying apparatus 12 are attached to each other, the relationship of the rotation axes of the accessory 11, the axes of the first coil 1141, and the axes of the second coil 1214 is any one of the following: the three axes are parallel to each other, the three axes are coincident with each other, and any two of the three axes are coincident and parallel to the other, in order to ensure that the co-axiality between the first coil 1141 and the second coil 1214 after the accessory 11 is rotated relative to the drying apparatus 12.

[0127] In some embodiments, as shown in FIGS. 6 and 7, the main body of the accessory 11 has a first end 111, an airflow passage channel 112, and a second end 113 along the direction of airflow from the drying apparatus 12, wherein the airflow passage channel 112 is connected between the first end 111, and the second end 113. When the accessory 11 is attached to the drying apparatus 12, the first end 111 thereof is the portion closest to the drying apparatus 12. In order to minimize the communication distance of the first coil 1141, the first coil 1141 is configured directly at the first end 111, or the distance from the first coil 1141 to the first end 111 is less than the distance from the first coil 1141 to the second end 113, i.e., the first coil 1141 is closer to the first end 111.

[0128] In some more specific embodiments, an air inlet is configured at the first end 111 of the accessory 11, and the axis of the first coil 1141 is parallel to or coincident with the air inlet axis. The airflow from the drying apparatus 12 is configured to enter the main body of the accessory 11 from the air inlet. The plane where the air inlet is configured is substantially perpendicular to the axis of the airflow, so that the axis of the first coil 1141 is parallel to or coincides with the airflow inlet axis, which may achieve a structural effect that: when the accessory 11 is attached to the drying apparatus 12, the axis of the first coil 1141 is parallel to or coincides with the airflow axis from the drying apparatus 12.

[0129] Since the accessory 11, for various reasons such as adapting to the drying apparatus 12, aerodynamic design, shape, heat insulation, attaching strength, airflow guiding direction, etc., is designed in different configurations and shapes. In particular, there are various configurations of the portion for attaching to the drying apparatus 12 as well as the air inlet, so that there are various locations on the accessory 11 with different configurations at which the first coil 1141 may be configured.

[0130] FIGS. 8 to 13 illustrate a variety of specific configurations of the accessory 11, and the positions of the first coil 1141 in these configurations will be described below in accordance with the drawings. The first coil 1141 is not shown directly in these drawings. Its own structure can be understood by referring to FIG. 7. The first coil 1141 may be configured at any locations listed in the various embodiments below. The first coil 1141 may also

comprise multi-layered coils and/or multiple portions in series and/or parallel, then the multi-layered coils and/or the multiple portions may be configured at one or more locations listed in the various embodiments hereinafter, respectively, or in one of these locations simultaneously.

[0131] As shown in Figure 8, in some embodiments of the present disclosure, the first end 111 of the accessory 11 is configured integrally with an air inlet. The first end 111 can be removably attached to the drying apparatus 12 directly. The attaching method between the first end 111 and the drying apparatus 12 can be: the end of the drying apparatus 12 is directly inserted into the first end 111, and the two are coupled to each other and disassembled by threading, snap-fitting, magnetic connection, etc.; or the first end 111 is inserted into the end of the drying device 12, for example, directly inserted into parts of the drying device 12 such as the air outlet 122, and can also be coupled to each other and disassembled by threading, snap-fitting, magnetic connection, etc. In some embodiments, the end face of the first end 111 abuts against the end of the drying device 12, and the two are coupled to each other at the abutting position by a snap, magnetic connection, etc.

[0132] Since the first end 111 of the accessory 11 is configure integrally with an air inlet that is internally hollow, there is no structure within the first end 111 that can support the first coil 1141. In this type of accessory 11, the first coil 1141 is configured at the inner or outer wall of the first end 111, for instance, fixed on the inner wall of the first end 111 by means of gluing, thermos plasticizing, embedding, etc., or fixed on the outer wall of the first end 111 by means of snapping, wrapping, embedding, gluing, etc. Alternatively, it may be indirectly configured at the inner or outer wall of the first end 111 by a structure such as a support frame, a support arm, etc.

[0133] In some embodiments, the accessory 11 may also be of a multi-layer nested structure, so as to avoid its outer shell being heated by hot airflow from the drying apparatus 12 to an excessively high temperature. In other words, at the first end 111 of the accessory 11, the inner wall and the outer wall belong to different structures, respectively, then the first coil 1141 may also be configured between the inner wall and the outer wall, i.e., between any two adjacent layers of the multi-layer nested structure.

[0134] The accessory 11 in some embodiments, as shown in FIG. 9, is configured with at least one support structure 111a at the first end 111 or at a location of the main body in proximity to the first end 111. The first coil 1141 is configured at the support structure 111a. In some embodiments, the support structure 111a is a structure specifically for the positioning of the first coil 1141, such as a bracket, a step, one or more support arms, etc. projecting from the first end 111 toward the interior or exterior of the main body, or a structure such as a decorative piece, an exterior piece, a cover piece, etc., configured outside of the main body. In other embodiments, the support structure 111a also has other functions besides positioning the first coil 1141.

[0135] In a more specific embodiment, the support structure 111a is configured with a magnetic assembly, the magnetic assembly is configured to attached to the drying apparatus 12 by magnetic connection. The first coil 1141 is configured at the magnetic assembly, which needs to be adapted to the configuration of the drying apparatus 12. For instance, a ring-shaped magnet or iron is configured at the end of the drying apparatus 12 with the air outlet 122, and a magnet or iron of a corresponding shape is configured at the accessory 11 to form the magnetic assembly. The first coil 1141 may be configured at an inner end of, an outer end of, or within the magnetic assembly.

[0136] In a specific embodiment as shown in FIG. 11, the support structure 111d is configured within the air inlet configured by the first end 111, and the support structure 111d is configured to change the airflow speed and/or airflow direction. After the accessory 11 is attached to the drying apparatus 12, the airflow from the drying apparatus 12 enters the main body from the air inlet, and the airflow passes through the support structure 111d and its speed and/or direction is altered. Such guide structure 111d has a predetermined shape that guides the airflow to achieve the design purpose. For instance, as shown in FIG. 11, the guide structure 111d is configured at the axis of the airflow from the drying apparatus 12, which increases the airflow resistance at that location, causing the airflow to spread out and decelerate, and resulting in a softer output airflow. In other embodiments, such structure 111d may also be configured in other aerodynamic shapes to provide a corresponding airflow guiding function. The first coil 1141 may be configured at the outer wall of the support structure 111d. Alternatively, the support structure 111d may be a multi-layer nested structure, and the first coil 1141 may be configured between any two adjacent layers of the multi-layer nested structure.

[0137] In another specific embodiment as shown in FIG. 12, the support structure comprises a diffusion structure 111c configured inside the air inlet formed by the first end 111. The diffusion structure 111c comprises a chamber with an opening, one end of which is configured with a guide inlet. One or more diffusion holes are configured on the side wall of the diffusion structure 111c. After the accessory 11 is attached to the drying apparatus 12, at least a portion of the airflow from the drying apparatus 12 enters the diffusion structure 111c from the guide inlet and then disperses along the diffusion holes on the sidewall of the chamber to enter and pass through the main body of the accessory 11. The final airflow emitted from the accessory 11 has a large cross-sectional area. Similarly, since the diffusion structure 111c is added inside the first end 111, the first coil 1141 may be configured at the outer wall of the diffusion structure 111c, the inner wall of the diffusion structure 111c. Alternatively, the diffusion structure 111c is a multi-layer nested structure, and the first coil 1141 may be configured between any two adjacent layers of the multi-layer nested structure.

[0138] In some embodiments, the support structure is designed to be detachably mounted to the drying apparatus 12. In other words, the support structure forms a connecting portion between the accessory 11 and the drying apparatus 12 and may be used for positioning of the first coil 1141.

[0139] In a specific embodiment as shown in FIG. 10, the support structure 111b comprises a mounting seat 111b, which is configured outside the air inlet formed by the first end 111. The mounting seat 111b may be inserted to the end of the drying apparatus 12 so that the two are removably coupled to each other. The first coil 1141 may be configured in at least one of the following positions: an inner wall of the mounting seat 111b, an outer wall of the mounting seat 111b, and between the inner wall and the outer wall of the mounting seat 111b. It shall be noted that the difference between the embodiment shown in FIG. 10 and the embodiment shown in FIG. 8 also is that in FIG. 8, the first coil 1141 is configured at a location where the main body can directly contact the airflow (the first coil 1141 itself is not necessarily in direct contact with the airflow), whereas in FIG. 10, the first coil 1141 is configured at a location where the main body does not directly contact the airflow.

[0140] In a specific embodiment as shown in FIG. 13, the support structure comprises a connecting structure 111f that can be inserted to the end of the drying apparatus 12 and form a mutual coupling. The first coil 1141 is configured with the connecting structure 111f. Referring to the drying apparatus 12 illustrated in FIG. 14, it is configured with a hollow area 124 at one end. An airflow channel 123 is configured in an outer ring of the hollow area 124, and the airflow channel 123 is connected to one end of the housing 126 to form an annular air outlet 122. When the accessory 11 is attached to the drying apparatus 12 of this configuration, the connecting structure 111f may be inserted into the hollow area 124 of the drying apparatus 12, and is detachably coupled to the drying apparatus 12. Accordingly, the first coil 1141 is configured at the connecting structure 111f, and, according to specific configuration of the connecting structure 111f, may be configured at any position between the inner wall, the outer wall, and any location between the outer wall and the inner wall. The accessory 11 in this embodiment is attached such that the connection structure 111f is located outside the airflow by the drying apparatus 12, i.e., the output airflow from the drying apparatus 12 does not pass through the surface of the connection structure 111f. The accessory 11 in this embodiment may also be adapted to the drying apparatus 12 as shown in FIG. 16, with the connecting structure 111f directly inserted to the airflow channel 123 of the drying apparatus 12. In this way, at the first end 111 of the accessory 11, the air inlet is actually formed by the connecting structure 111f and the first end 111 together, and the first coil 1141 is configured at the connecting structure 111f, which may also be understood as the first coil 1141 is configured at an outer or inner wall of the air inlet.

[0141] In different embodiments, the drying apparatus 12 itself has various configurations as illustrated in FIGS. 14 to 16. The positions of the second coil 1214 in these configurations according to the drawings will be described in the following. The second coil 1214 is not shown directly in these drawings, and its structure should be understood together with FIG. 7. In any of the following configurations of the drying apparatus 12, the second coil 1214 may be configured at an inner or outer wall of a housing 126 thereof, either by direct coupling via gluing, thermoplastic, embedding, etc., or indirect coupling via relevant supporting frames, support arms, etc., which will not be repeated hereinafter.

[0142] The second coil 1214 may be configured at any location listed in the following embodiments. The second coil 1214 may also comprise multi-layered coils and/or one or more portions in series and/or parallel, then the multi-layered coils and/or the one or more portions may be configured at each of the one or more locations listed in the following embodiments, or at one of the listed locations simultaneously.

[0143] In one specific implementation of the drying apparatus 12 shown in FIG. 15, the second coil 1214 is configured directly in the air outlet 122, such as being coupled to an inner or outer wall of the air outlet 122 of the drying apparatus 12 by means of gluing, thermoplastic, embedding, or the like. Alternatively, the second coil 1214 may be configured between the housing 126 and the air outlet 122. For instance, a support frame may be configured around the air outlet 122 in the housing 126, and the second coil 1214 may be configured on the support frame.

[0144] In a specific implementation of the drying apparatus 12 shown in FIG. 16, the housing 126 comprises an airflow channel 123, which is connected to an end of the housing 126 and forms an air outlet 122. A second coil 1214 is configured at one or more of the following positions: an inner wall of the airflow channel 123, an outer wall of the airflow channel 123, an inner wall of the housing 126, and an outer wall of the housing 126. The second coil 1214 may be directly coupled to any of the above positions by means of gluing, thermoplastic, embedding, etc., or indirectly coupled to any of the above positions by means of an additional support structure or the like.

[0145] In one specific embodiment of the drying apparatus 12 shown in FIG. 14, a hollow area 124 is configured in the housing 126, and an airflow channel 123 is configured at an outer ring of the hollow area 124. The airflow channel 123 is connected to an end of the housing 126 and forms an air outlet 122. Besides the inner wall of the airflow channel 123, the outer wall of the airflow channel 123, the inner wall of the housing 126, and the outer wall of the housing 126, the second coil 1214 may be configured at any location of the inner wall of the hollow area 124, and the outer wall of the hollow area 124. In particular, it may be directly coupled to any of the above positions by means of gluing, thermoplastic, embedding,

etc., or indirectly coupled to any of the above positions by means of an additional support structure or the like.

[0146] In a specific embodiment shown in FIG. 7, the drying apparatus 12 comprises a radiation assembly 123 configured to emit infrared radiation. In order to avoid blockage of the infrared radiation and ensure that the areas covered by the infrared radiation and the airflow overlap as much as possible, the radiation assembly 123 is generally configured near the end of the air outlet 122. The second coil 1214 may also be configured at the radiation assembly 123. The radiation assembly 123, configured near the air outlet 122, provides support for positioning of the second coil 1214, which reducing communication distance between the second coil 1214 and the first coil 1141.

[0147] In a more specific embodiment, the radiation assembly 123 comprises a mounting seat 1232 and one or more radiation energy sources 1231. The radiation energy sources 1231 is configured to generate infrared radiation of a predetermined wavelength range when powered. The mounting seat 1232, which the radiation energy sources 1231 is coupled to, is mounted to the housing 126. In addition to coupling the radiation energy source 1231, the mounting seat 1232 also provides functions such as circuit installation, buffer protection, and the like. The second coil 1214 is configured at the mounting seat 1232 and is not in direct contact with the radiation energy source 1231, thereby avoiding being heated by the radiation energy source 1231. In addition, the mounting seat 1232 may have already integrated the relevant circuits for supplying power to the radiation energy source 1231, which also facilitates the design of the relevant electrical coupling structure of the second coil 1214.

[0148] In some embodiments, as shown in FIG. 7, the mounting seat 1232 may form an air outlet 122 or a portion of the air outlet 122. In some embodiments not shown, an annular air outlet is formed between the mounting seat 1232 and the housing 126. When designing the mounting seat 1232 and the air outlet 122, it is necessary to determine the relationship between the axis of the mounting seat 1232 and the axis of the air outlet 122, so that the co-axiality of the air outlet 122 and the second coil 1214 is achieved by coupling the second coil 1214 to the mounting seat 1232.

[0149] In the description of this specification, reference to the terms "an embodiment," "some embodiments," "illustrative embodiments," "instances," "specific embodiment," or "some instances" refer to at least one embodiment or example of the present disclosure including the specific features, structures, materials or characteristics described in combination with the embodiment or example. In this specification, the illustrative expressions of the above terms do not necessarily refer to the same embodiment or example. Moreover, the specific features, structures, materials or characteristics described can be appropriately combined in any one or more embodiments or examples. In addition, one skilled in the art can combine and mix the different embodiments or examples and the features of the different embodiments or examples described in this specification without contradiction.

[0150] Any process or method description described in the flow chart or otherwise herein can be understood to represent a module, fragment, or portion of code including one or more executable instructions for implementing a particular logical function or process, and the scope of the preferred embodiments of the present disclosure includes additional implementations, wherein the functions may be performed in a different order than shown or discussed, or in a substantially simultaneous manner or in the opposite order according to the functions involved, which should be understood by persons skilled in the art to which the embodiments of the present disclosure belong.

[0151] Although embodiments of the present disclosure have been shown and described above, it is understood that the above embodiments are exemplary and are not to be construed as limiting the present disclosure, and persons skilled in the art may make changes, modifications, substitutions and variations to the above embodiments within the scope of the present disclosure.

Claims

1. An accessory, the accessory comprising:

   a main body configured to be detachably attached to a drying apparatus and allowing an airflow to pass through;
   a first storage module and a first communication module configured on the main body, wherein the first communication module communicates with the drying apparatus and transmits data stored in the first storage module to select, add, delete, modify at least one of one or more operation modes of the drying apparatus, wherein each operation mode comprises target value of airflow speed and/or airflow temperature.

2. The accessory of claim 1, wherein the first storage module stores one or more sets of control data, wherein the control data comprises target value of airflow speed and/or airflow temperature; the drying apparatus, upon receiving the one or more sets of control data, increases one or more of the operation modes.

3. The accessory of claim 2, wherein the control data comprises target value of at least one of airflow speed, airflow temperature, and radiation intensity.

4. The accessory of claim 1, wherein the first storage module stores identification information; wherein the drying apparatus, upon receiving the identification

information, selects, from the one or more operation modes, an operation mode corresponding to the identification information.

5. The accessory of claim 1, wherein the first storage module stores display information; wherein the drying apparatus, upon receiving the display information, displays the display information.

6. The accessory of claim 1, wherein the accessory further comprises a first writing module configured to perform at least one of adding, deleting, and modifying one or more of the operation modes of the drying apparatus.

7. The accessory of any one of claims 1 to 6, wherein the first communication module communicates with the drying apparatus through at least one of touch points, plugs, and data cables.

8. The accessory of any one of claims 1 to 6, wherein the first communication module communicates wirelessly with the drying apparatus.

9. The accessory of claim 8, wherein the first communication module comprises a first coil electrically connected to the first storage module, wherein the first coil comprises a wireless communication antenna.

10. The accessory of claim 9, wherein an axis of the first coil is parallel to or coincident with an axis of the airflow from the drying apparatus.

11. The accessory of claim 9, wherein, along the direction of the airflow from the drying apparatus, the main body has a first end and a second end; wherein the first coil is configured at the first end or a location which distance from the first end is less than the distance between the first coil and the second end.

12. The accessory of claim 11, wherein the first end is configured with an air inlet, and an axis of the first coil is parallel to or coincident with an axis of the air inlet.

13. The accessory of claim 12, wherein the first coil is configured at at least one of the following: an inner wall of the air inlet, an outer wall of the air inlet, and between the inner wall and the outer wall of the air inlet.

14. The accessory of claim 12, wherein at least one support structure is configured at the first end or a location of the main body in proximity to the first end; wherein the first coil is configured on the support structure.

15. The accessory of claim 14, wherein the support structure is configured within the air inlet and is configured to alter airflow speed and/or airflow direction.

16. The accessory of claim 14, wherein the support structure comprises a diffusion structure configured within the air inlet, wherein the diffusion structure is configured with a conduction inlet, and sidewalls of the diffusion structure is configured with one or more diffusion holes; at least a portion of the airflow from the drying apparatus flows from the conduction inlet into the diffusion structure, and then flows out of the diffusion structure through the one or more diffusion holes and enters the main body;
Wherein the first coil is configured at least one of the following: an inner wall of the diffusion structure, an outer wall of the diffusion structure, and between the inner and outer walls of the diffusion structure.

17. The accessory of claim 14, wherein the support structure is detachably mounted to the drying apparatus.

18. The accessory of claim 17, wherein the support structure is configured outside the air inlet, and comprises a mount into which the drying apparatus can be inserted or fixed;
wherein the first coil is configured at least one of the following: an inner wall of the mount, an outer wall of the mount, and between the inner and outer walls of the mount.

19. The accessory of claim 17, wherein the support structure comprises a connecting structure configured to be inserted into the end of the drying apparatus and forms a mutual connection; wherein the first coil is configured at the connecting structure.

20. The accessory of claim 17, wherein the support structure comprises a magnetic assembly configured to be magnetically attached to the drying apparatus; wherein the first coil is configured at the magnetic assembly.

21. The accessory of claim 9, wherein the main body is rotatably attached to the drying apparatus, wherein a rotation axis of the main body is parallel to or coincident with an axis of the first coil.

22. The accessory of claim 1, wherein the main body alters at least one parameter of the airflow from the drying apparatus.

23. A drying apparatus, the drying apparatus comprising:

a housing configured with an air outlet for detachable accessory of an accessory at one end,

wherein the accessory is configured to allow an airflow to pass through;
an airflow generating assembly configured to effect the airflow;
a heating assembly configured to heat the airflow;
a control module configured to control the operation of the airflow generating assembly or the heating assembly;
a second communication module, electrically connected to the control module; wherein the second communication module is configured to receive data from the accessory;
wherein the control module is configured to select, add, delete, modify at least one of one or more operation modes of the drying apparatus based on the data from the accessory, wherein the operation mode comprises target value of the airflow speed and/or the airflow temperature.

24. The drying apparatus of claim 23, wherein the drying apparatus further comprises a radiation assembly configured to generate infrared radiation; wherein the control module controls operation of the radiation assembly;
wherein the operation mode comprises target value of at least one of airflow speed, airflow temperature, and radiation intensity.

25. The drying apparatus of claim 23, wherein the data from the accessory comprises one or more sets of control data, wherein the control data comprises target value of airflow speed and/or airflow temperature; wherein the control module is configured to add one or more of the operation modes according to the one or more sets of control data.

26. The drying apparatus of claim 25, wherein the control module is configured to perform the operation modes added.

27. The drying apparatus of claim 23, wherein the drying apparatus further comprises a second storage module configured to pre-store the one or more operation modes;
wherein the data from the accessory comprises identification information, and the control module is configured to, upon reading the second storage module, select, from the one or more operation modes pre-stored, at least one operation mode corresponding to the identification information and execute the at least one operation mode.

28. The drying apparatus of claim 23, wherein the data from the accessory comprises display information
wherein the drying apparatus further comprises a display module configured to display the display information.

29. The drying apparatus of claim 23, wherein the drying apparatus further comprises an operating module configured to generate a corresponding operation signal in response to an operation;
wherein the control module is configured to select a corresponding operation mode and execute it according to the operation signal.

30. The drying apparatus of claim 23, wherein the drying apparatus further comprises a second writing module configured to perform at least one of adding, deleting, and modifying the data of the accessory.

31. The drying apparatus of any one of claims 23 to 30, wherein the second communication module communicates with the accessory through at least one of touch points, plugs, and data cables.

32. The drying apparatus of any one of claims 23 to 30, wherein the second communication module communicates wirelessly with the accessory.

33. The drying apparatus of claim 32, wherein the second communication module comprises a second coil electrically connected to the control module, wherein the second coil comprises a wireless communication antenna.

34. The drying apparatus of claim 33, wherein an axis of the second coil is parallel to or coincides with an axis of the airflow output from the drying apparatus.

35. The drying apparatus of claim 33, wherein an axis of the second coil is parallel to or coincident with an axis of the air outlet.

36. The drying apparatus of claim 33, wherein the second coil is position in the air outlet or between the housing and the air outlet.

37. The drying apparatus of claim 33, wherein the housing comprises an airflow channel, wherein the airflow channel is connected to an end of the housing, forming the air outlet;
wherein the second coil is configured at at least one of the following: an inner wall of the airflow channel, an outer wall of the airflow channel, an inner wall of the housing, an outer wall of the housing.

38. The drying apparatus of claim 33, wherein the drying apparatus further comprises a radiation assembly configured within the housing, wherein the second coil is mounted to the radiation assembly.

39. The drying apparatus of claim 33, wherein the radiation assembly comprises a mount, one or more radiation sources; wherein each of the radiation sources is coupled to the mount, and the mount is

coupled to the housing; wherein the second coil is configured at the mount.

40. A drying assembly, the drying assembly comprising:

one or more accessories of any one of claims 1 to 22;
the drying apparatus of any one of claims 23-39;
when the accessory is attached to the drying apparatus, the control module, based on the data from the accessory, perform at least one of selection, addition, deletion, and modification of the one or more operation modes of the drying apparatus.

41. The drying assembly of claim 40, wherein the first communication module comprises a first coil and the second communication module comprises a second coil;
when the accessory is attached to the drying apparatus, an axes of the first coil is parallel to or coincide with an axes of the second coil.

42. The drying assembly of claim 41, wherein the accessory is rotatably attached to the drying apparatus; when the accessory is attached to the drying apparatus, the relationship among a rotation axis of the accessory, the axis of the first coil, and the axis of the second coil is any one of the following: all three are parallel to each other; all three are coincident with each other; or any two are parallel to and coincident with the other.

43. The drying assembly of claim 41, when the accessory is attached to the drying apparatus, the axes of the first coil, the axes of the second coil, and an axes of the airflow output from the drying apparatus are in any one of the following relationships: all three are parallel to each other, all three overlap with each other, or any two overlap with and are parallel to the other.

44. The drying assembly of any one of claims 40-43, wherein the drying assembly further comprises a writing module configured to communicate with the accessory and/or the drying apparatus, and at least perform at least one of addition, deletion, and modification of the data in the accessory and/or the drying apparatus.

45. The drying assembly of claim 44, wherein the writing module comprises an intelligent terminal, wherein the intelligent terminal obtains a data pack via a network and, upon communicating with the accessory and/or the drying apparatus, sends the data packet to the accessory and/or the drying apparatus for data upgrading.

46. The drying assembly of any one of claims 40-43, wherein the drying apparatus comprises a radiation assembly configured to generate infrared radiation; at least a portion of the accessory forms a filter capable of altering at least one parameter of the infrared radiation.

47. The drying assembly of any one of claims 40-43, wherein there is one or more the accessories, each configured to alter at least one parameter of the airflow.

48. A method for controlling a drying apparatus, the method comprising:

receiving data from an accessory, wherein the accessory is attached to an air outlet of the drying apparatus and allows an airflow to pass through;
at least one of selection, addition, deletion, modification of one or more operation modes of the drying apparatus is performed based on the data from the accessory,
wherein the operation mode comprises target value of airflow speed and/or airflow temperature.

49. The method of claim 48, wherein the method further comprises:
executing the operation mode to control operation of an airflow generating assembly and/or a heating assembly of the drying apparatus in accordance with target value of airflow speed and/or airflow temperature.

50. The method of claim 48, wherein the method further comprises:

executing the operation mode, wherein the operation mode comprising target value of at least one of airflow speed, airflow temperature, and radiation intensity; and
controlling operation of at least one of an airflow generating assembly, a heating assembly, and a radiation assembly in accordance with the target value of at least one of airflow speed, airflow temperature, and radiation intensity.

51. The method of claim 48, wherein the selection, addition, deletion, modification of one or more operation modes of the drying apparatus is performed based on data from the accessory, specifically comprising:

if the data from the accessory comprises one or more sets of control data, wherein the control data comprises target value of airflow speed and/or airflow temperature;

then the one or more operation modes are added based on one or more sets of the control data.

52. The method of claim 51, wherein after the addition of the one or more operation modes based on one or more sets of the control data, further comprises: executing the operation mode(s) added.

53. The method of claim 48, wherein the selection, addition, deletion, modification of one or more operation modes of the drying apparatus is performed based on data from the accessory, specifically comprising:

if the data from the accessory comprises identifying information;
then at least one of the one or more operation modes pre-stored is selected based on the identification information after read, and executed.

54. The method of claim 48, wherein the selection, addition, deletion, modification of one or more operation modes of the drying apparatus is performed based on data from the accessory, specifically comprising:
perform at least one of addition, deletion, and modification on the target value of the one or more operation modes based on the data from the accessory.

55. The method of claim 48, wherein after receiving data from an accessory, further comprises:

if the data from the accessory comprises display information;
then the display information is displayed on a display module.

56. The method of any one of claims 48 to 55, wherein before reading data in the accessory, further comprises:

verify whether the drying apparatus is in successfully communication with the accessory;
if the communication succeeds, the data in the accessory is obtained;
if the communication fails, the one or more operation mode is selected and executed based on an operation signal, wherein the operation signal is generated by an operation module in response to an operation.

57. The method of claim 56, wherein the confirming whether the drying apparatus is in successful communication with the accessory, specifically comprising:

the drying apparatus sends out communication requests continuously or at a predetermined frequency;
if a response to the communication request is received from the accessory, the drying apparatus has successfully communicated with the accessory;
if the response is not received, the drying apparatus has failed to communicate with the accessory.

58. The method of claim 57, wherein the method further comprises:

if the drying apparatus has successfully communicated with the accessory, stop sending out the communication request;
if the drying apparatus has failed to communicate with the accessory, the communication request is sent out continuously or at a predetermined frequency.

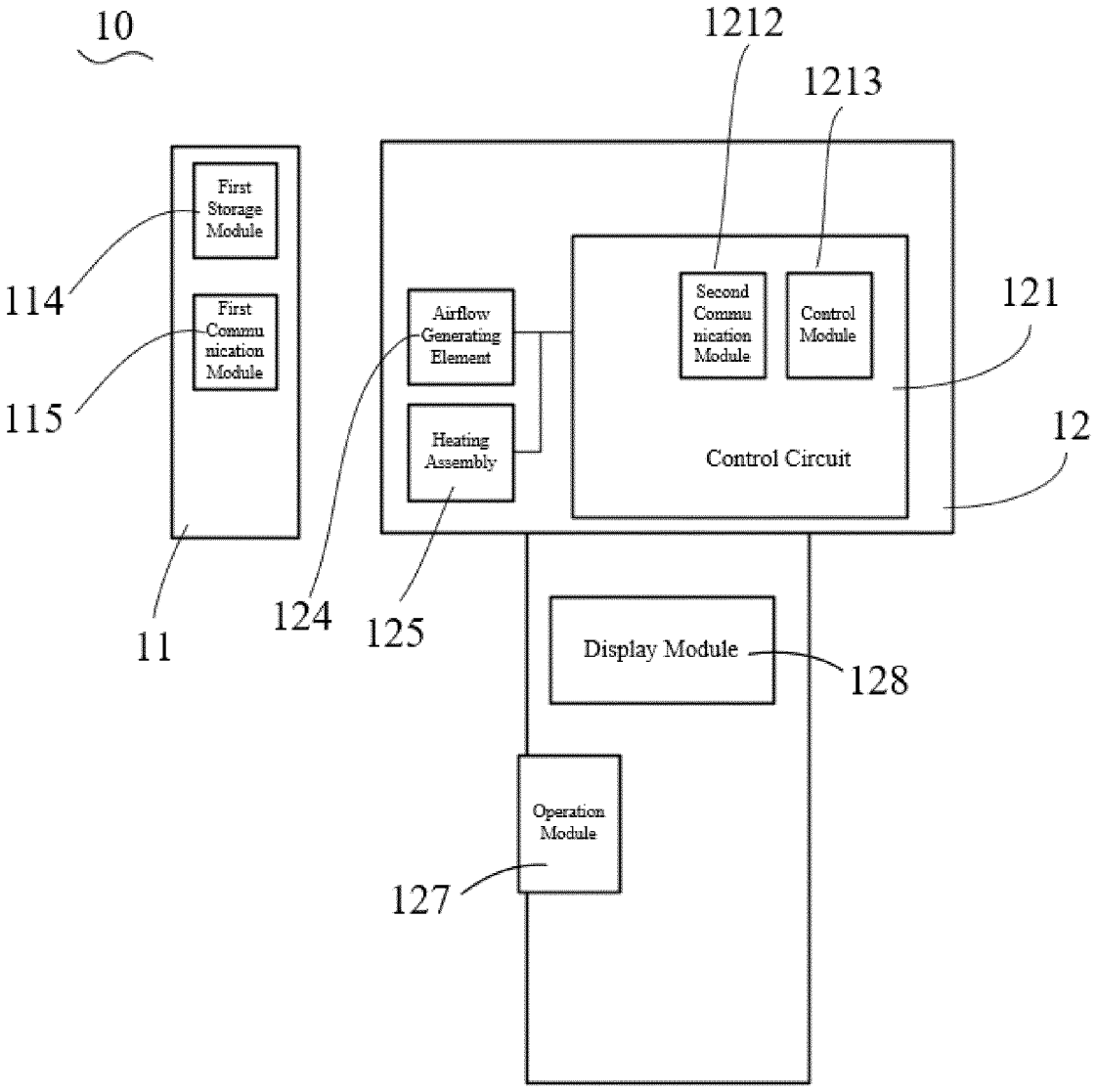
10
1212
1213
First Storage Module
114
First Communication Module
115
11
Airflow Generating Element
124
Heating Assembly
125
Second Communication Module
Control Module
121
Control Circuit
12
Display Module
128
Operation Module
127

FIG. 1

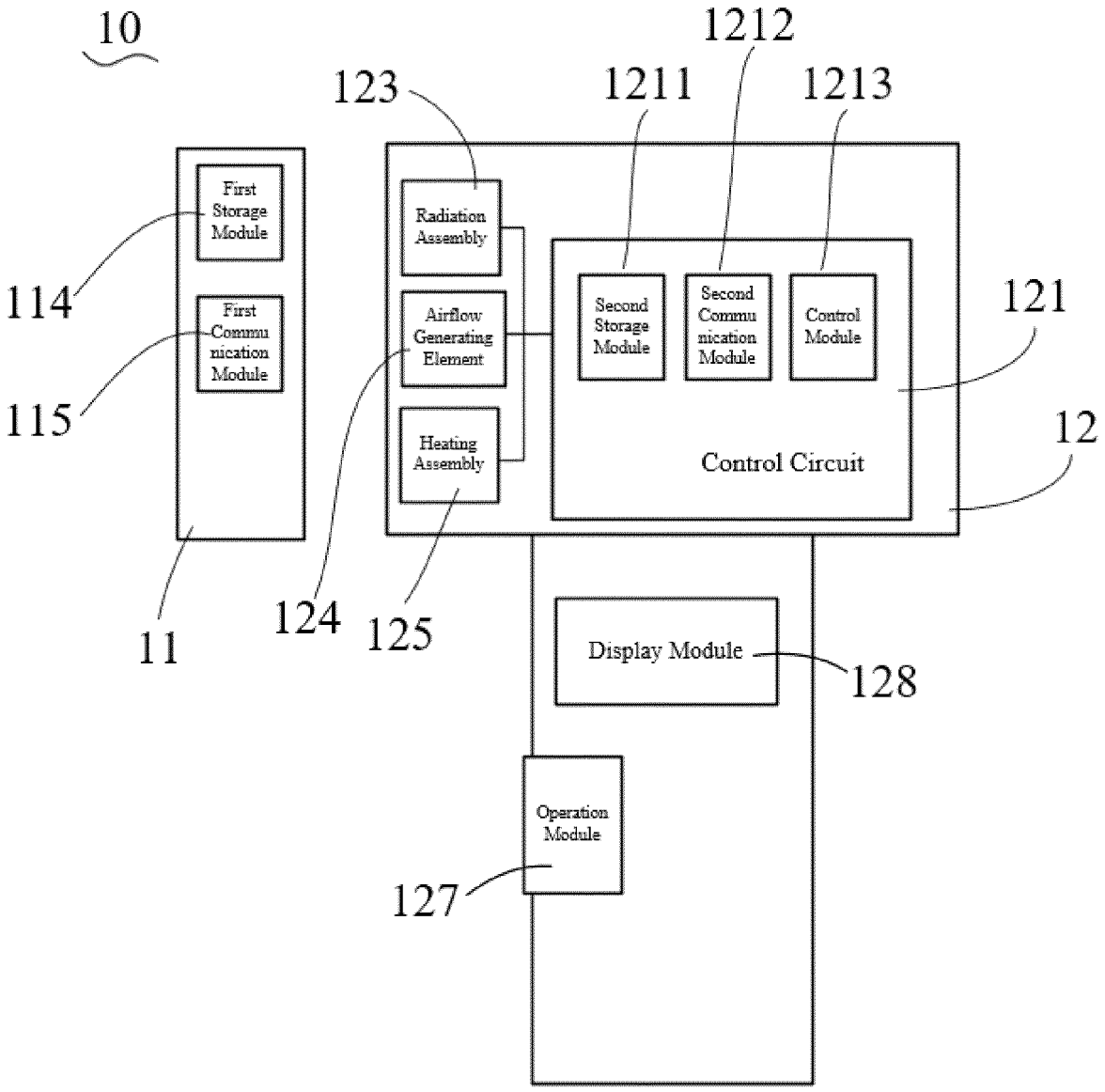
10
1212
123
1211
1213
First Storage Module
114
First Communication Module
115
Radiation Assembly
Airflow Generating Element
Heating Assembly
Second Storage Module
Second Communication Module
Control Module
121
Control Circuit
12
11
124
125
Display Module
128
Operation Module
127

FIG. 2

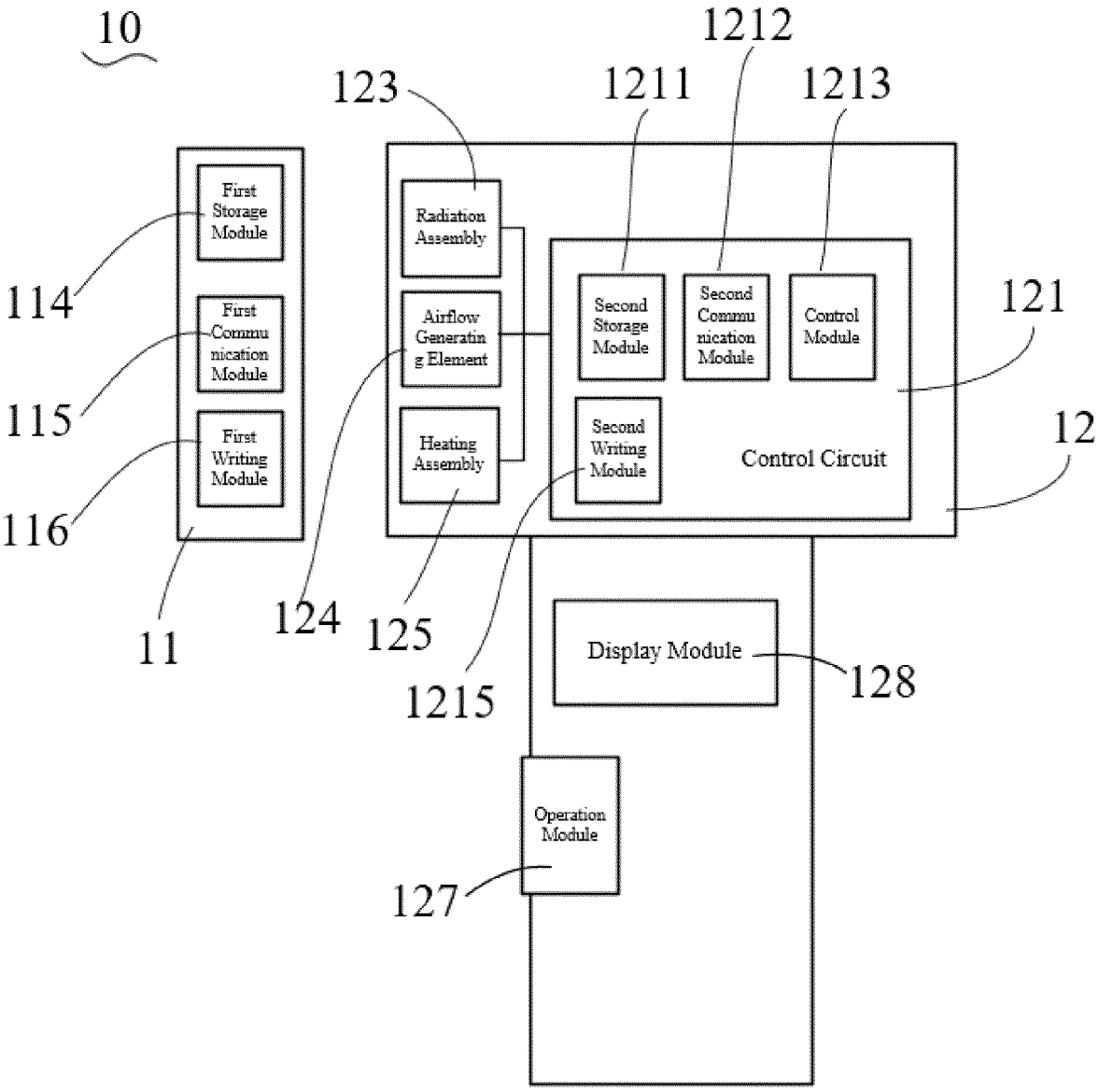
10
1212
123
1211
1213
First Storage Module
114
First Communication Module
115
First Writing Module
116
11
Radiation Assembly
Airflow Generating Element
Heating Assembly
124
125
Second Storage Module
Second Communication Module
Control Module
121
Second Writing Module
Control Circuit
12
1215
Display Module
128
Operation Module
127

FIG. 3

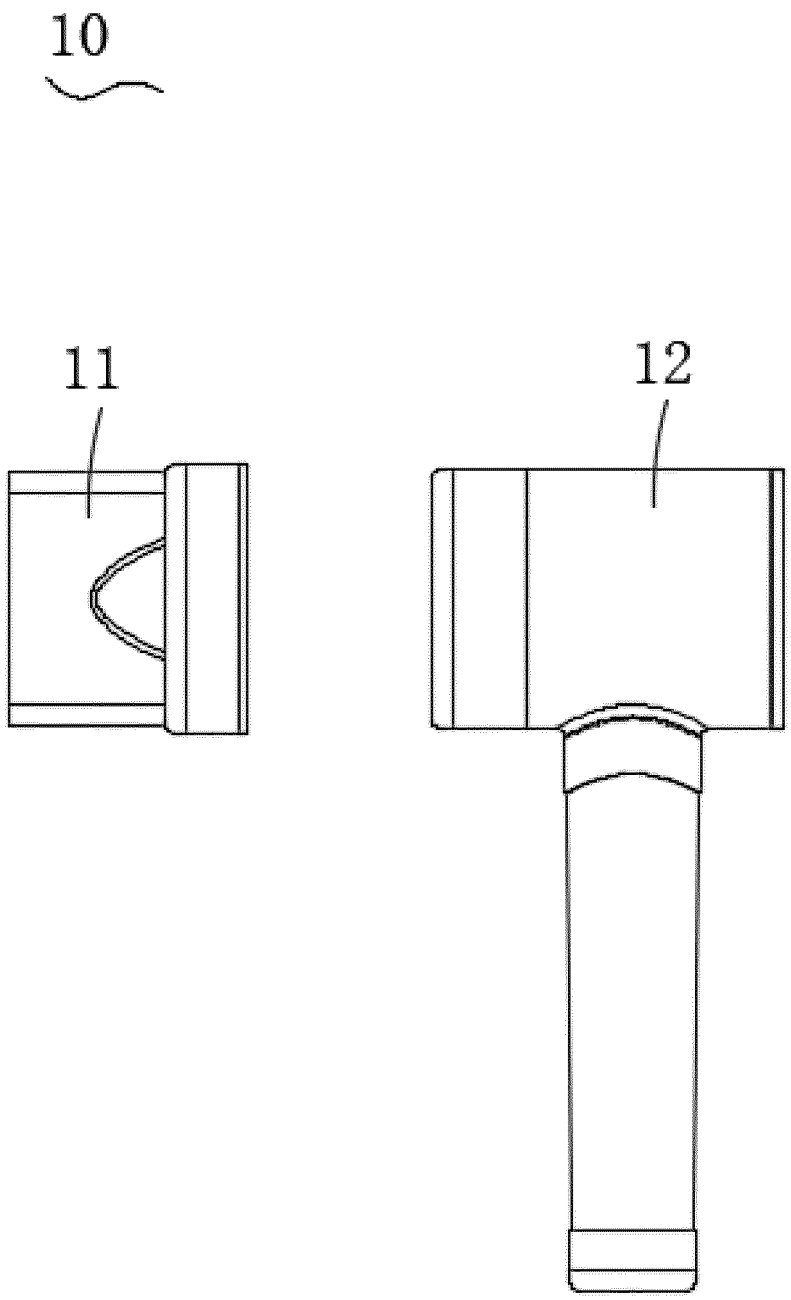

FIG. 4

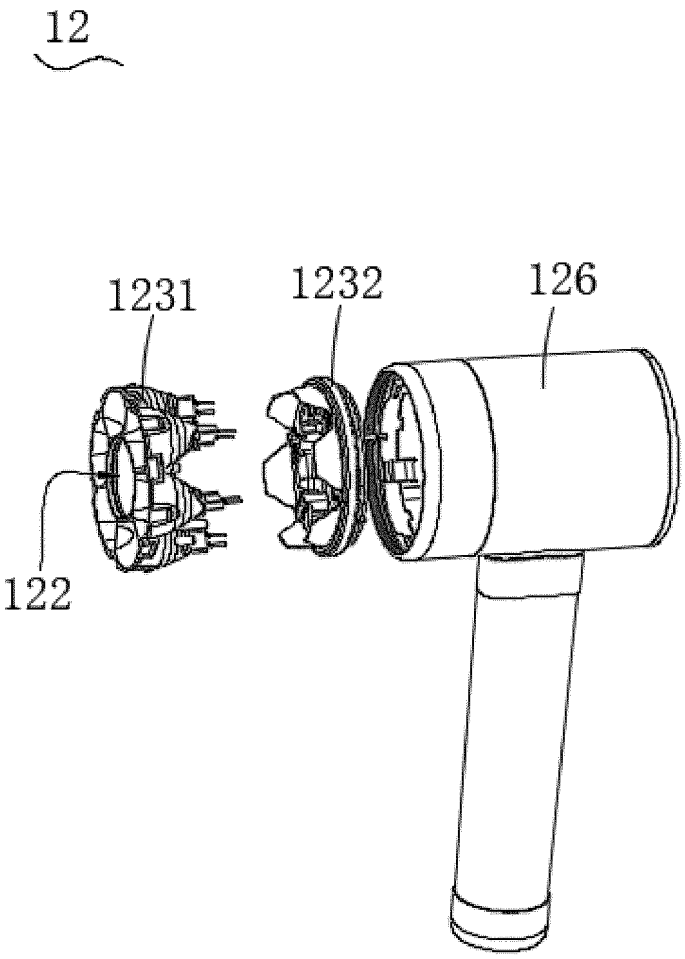

FIG. 5

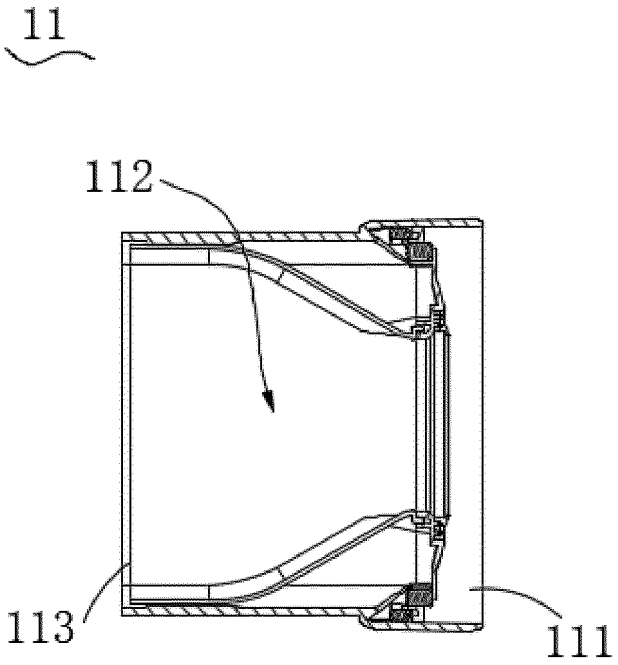

FIG. 6

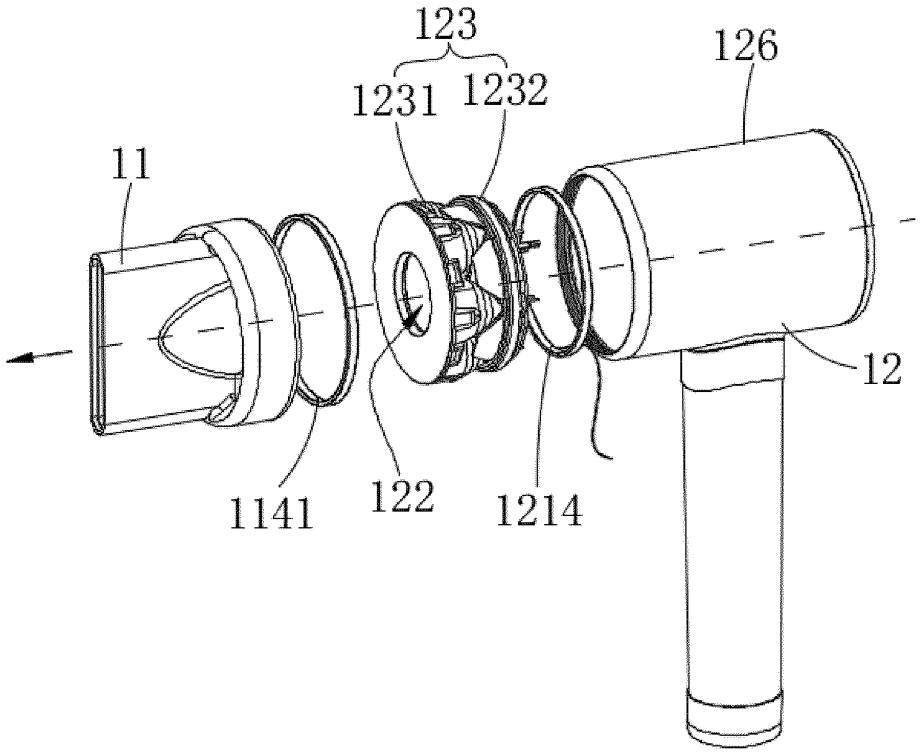

FIG. 7

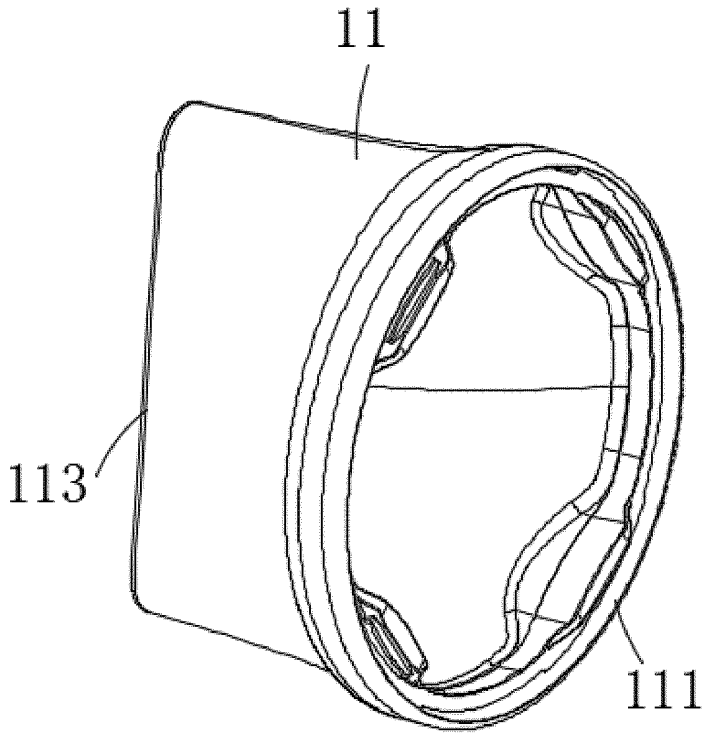

FIG. 8

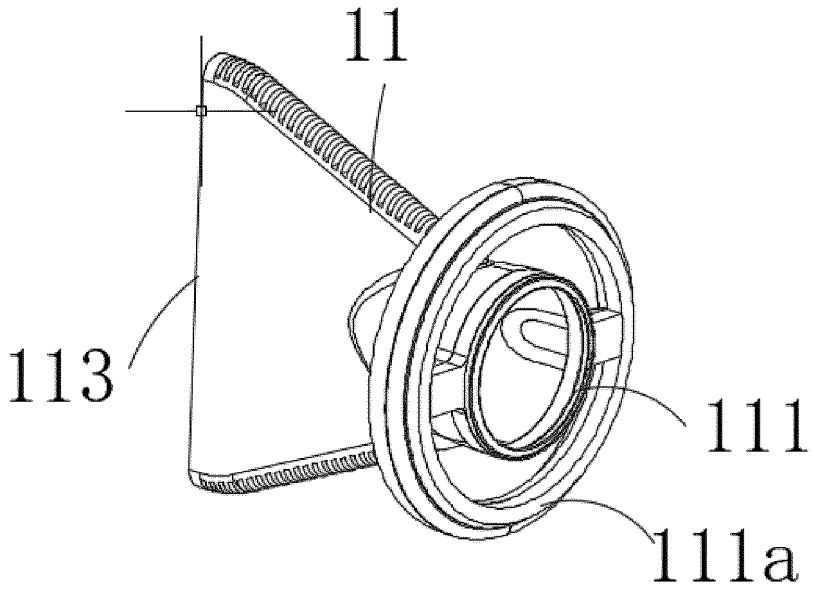

FIG. 9

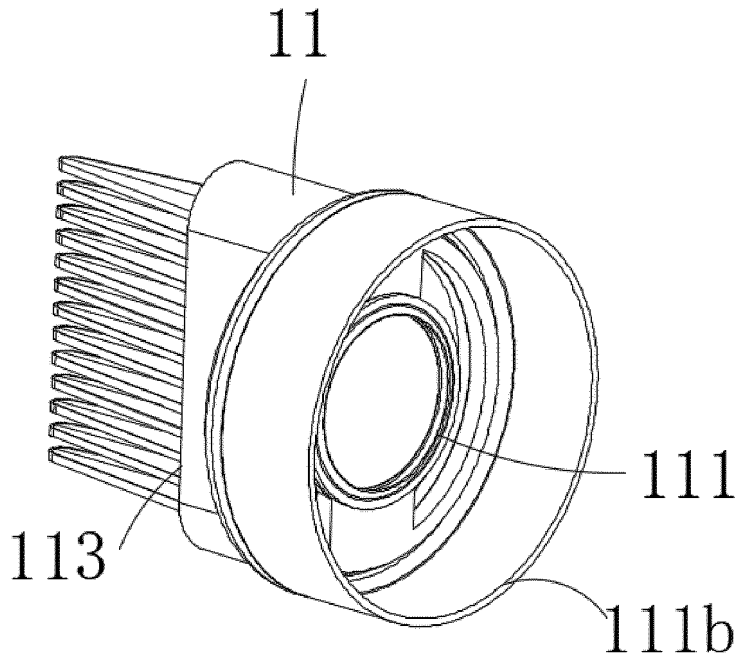

FIG. 10

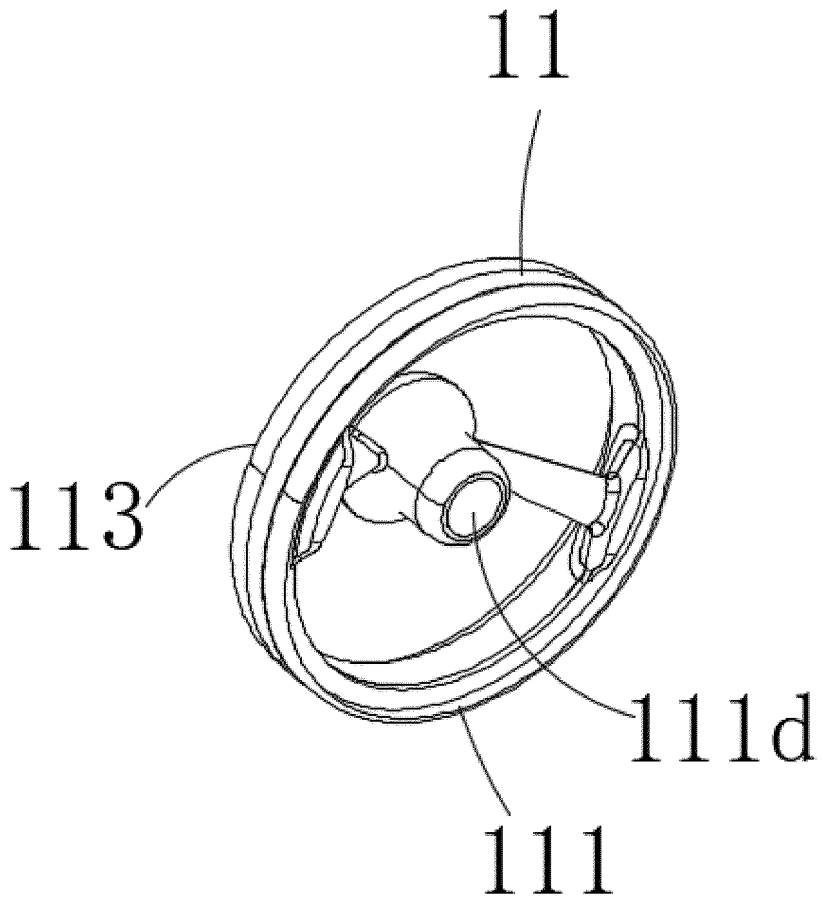

FIG. 11

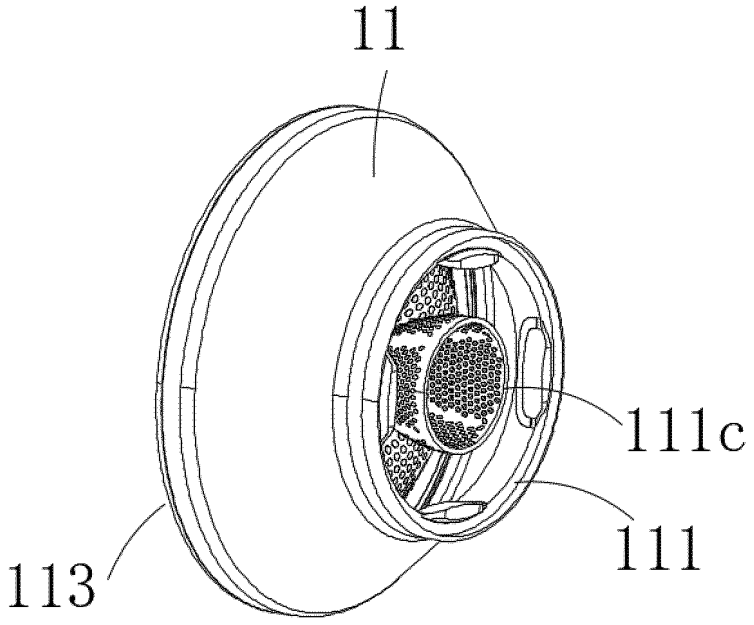

FIG. 12

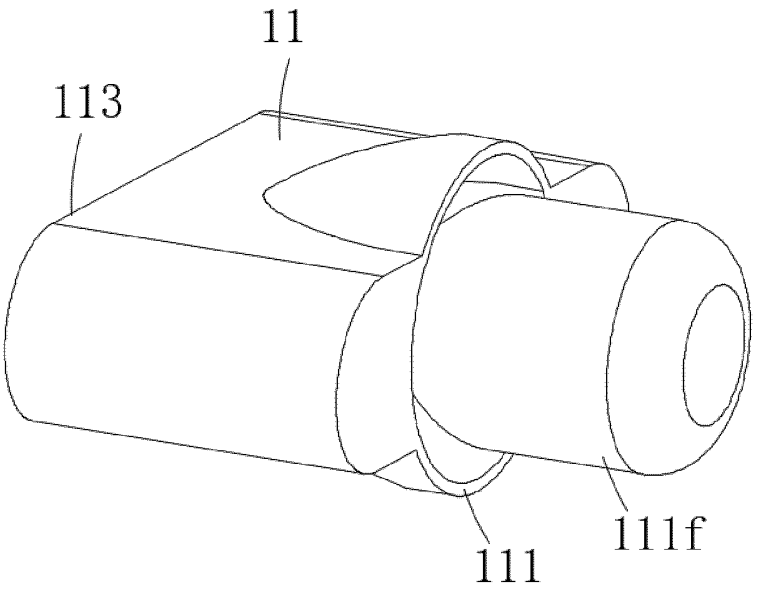

FIG. 13

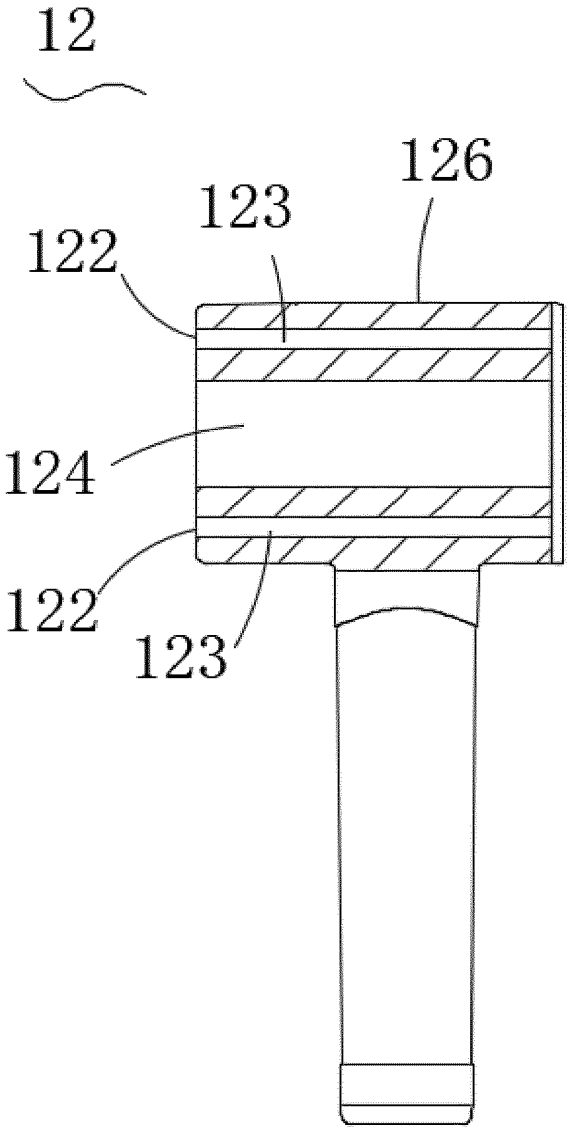

FIG. 14

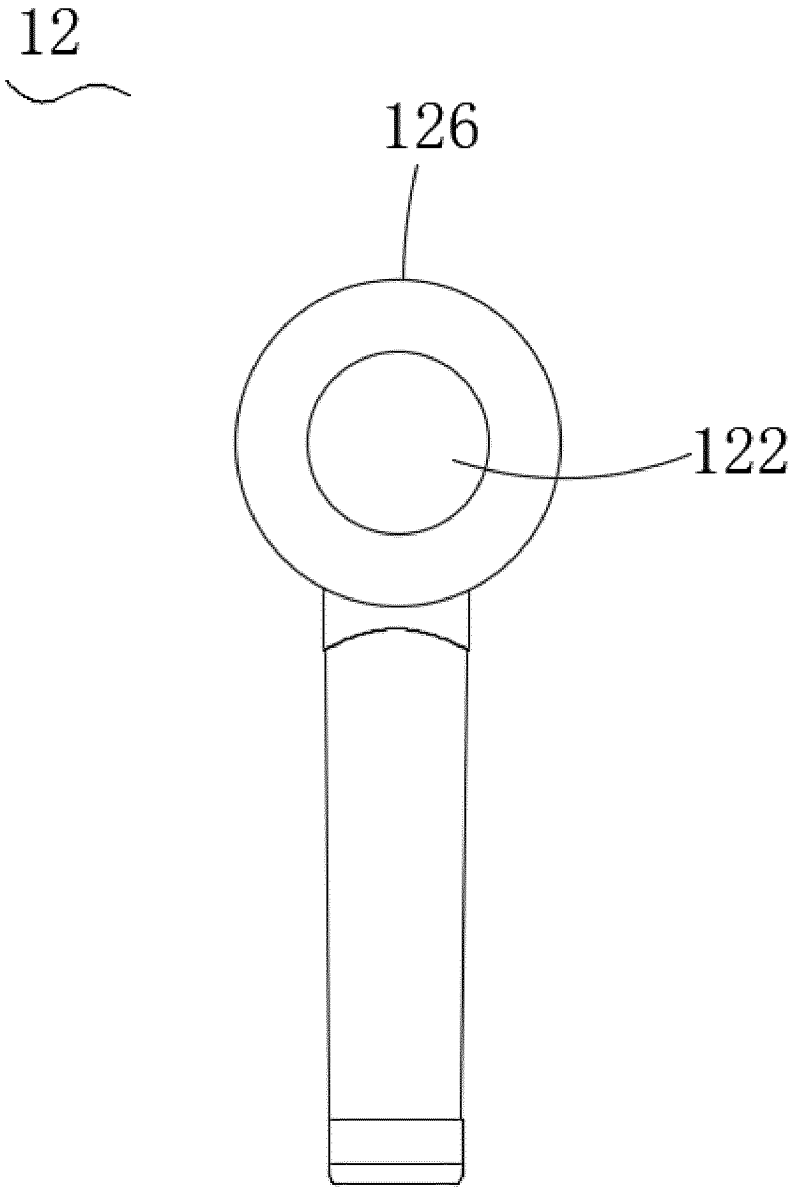

FIG. 15

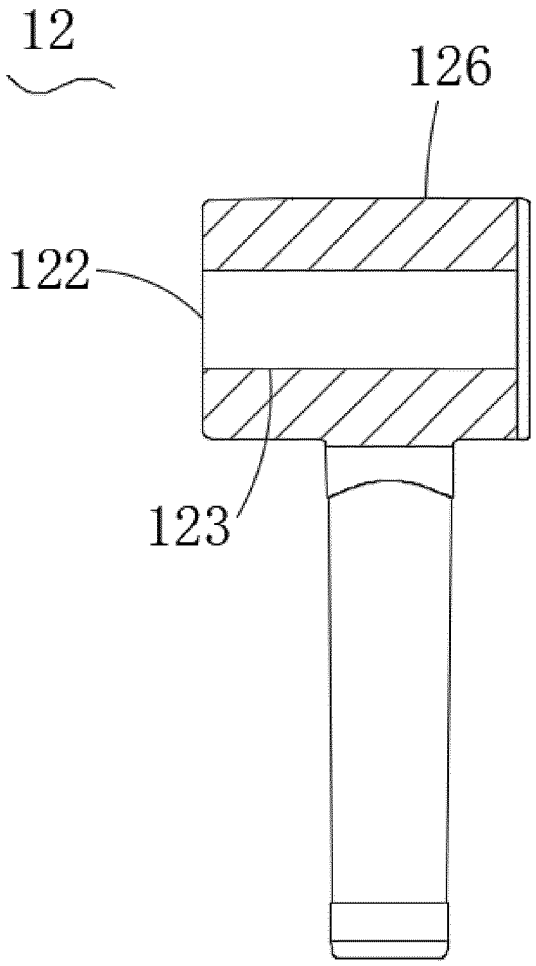
12
126
122
123

FIG. 16

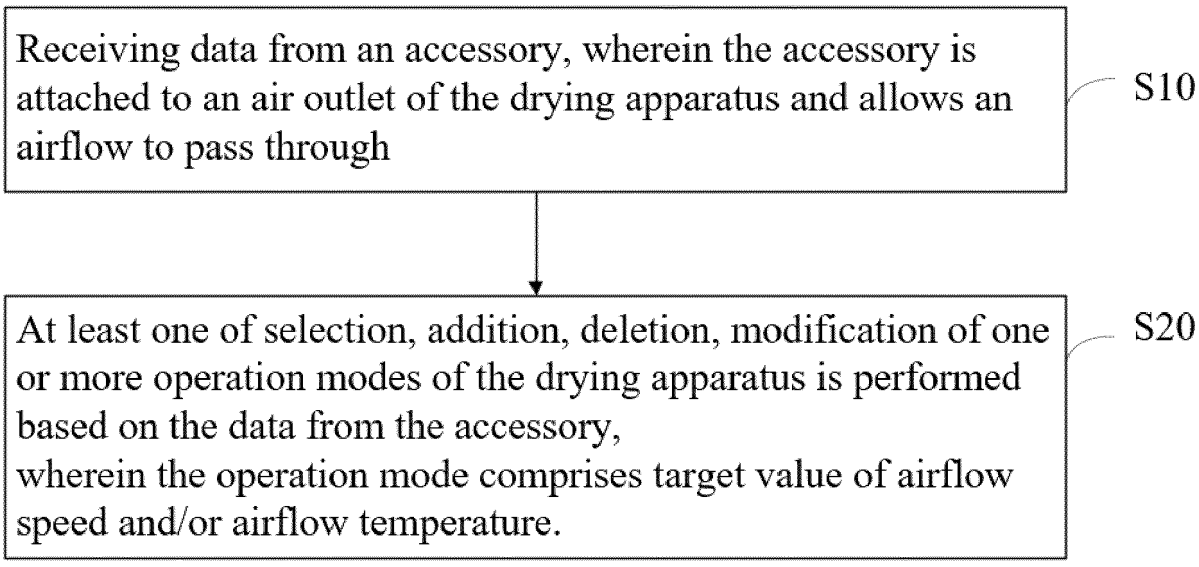
Receiving data from an accessory, wherein the accessory is attached to an air outlet of the drying apparatus and allows an airflow to pass through
S10
At least one of selection, addition, deletion, modification of one or more operation modes of the drying apparatus is performed based on the data from the accessory,
wherein the operation mode comprises target value of airflow speed and/or airflow temperature.
S20

FIG. 17

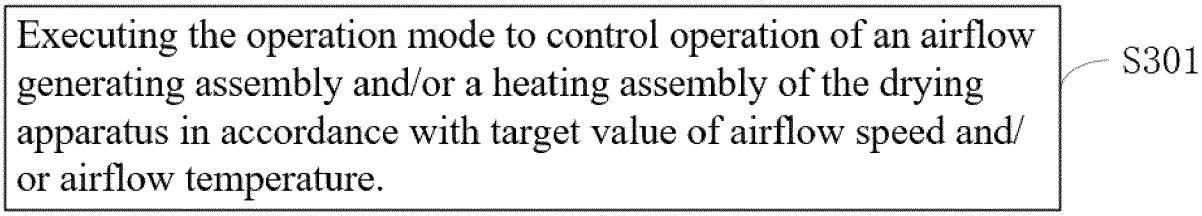

FIG. 18

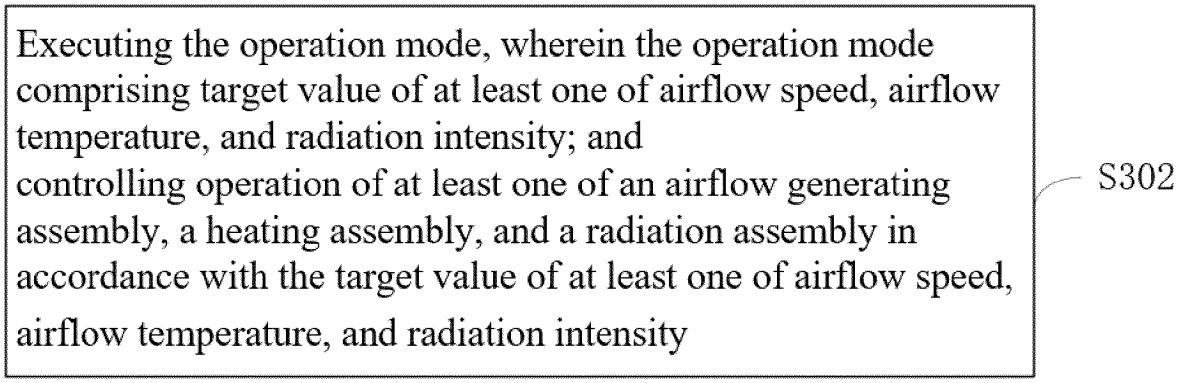

FIG. 19

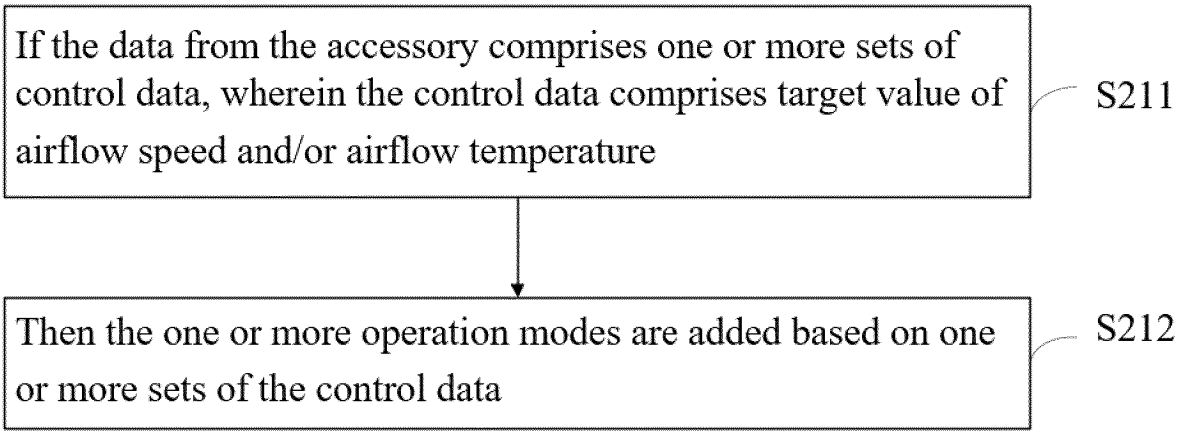

FIG. 20

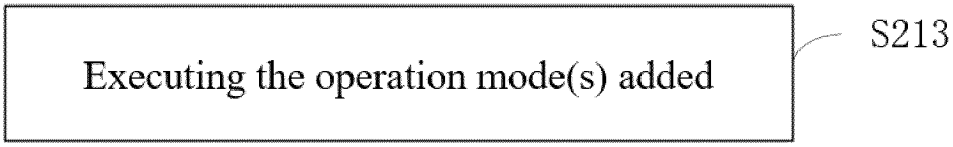

FIG. 21

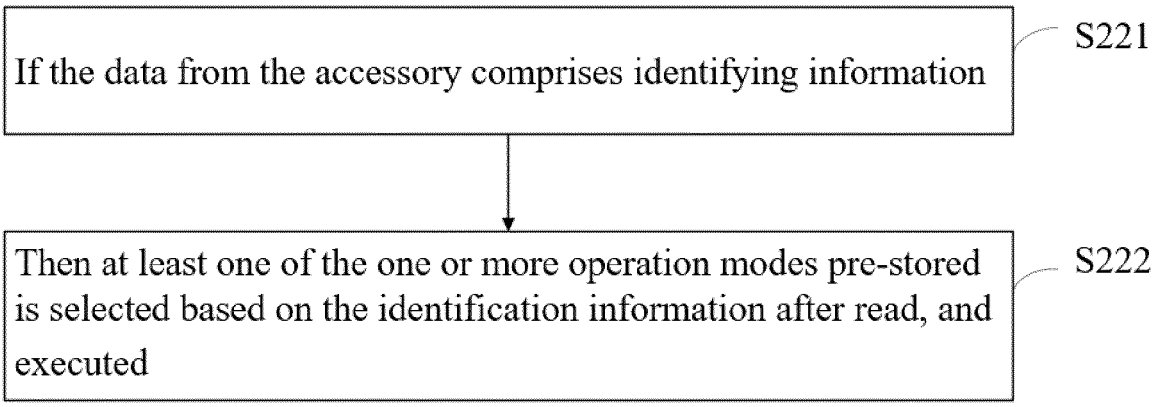

FIG. 22

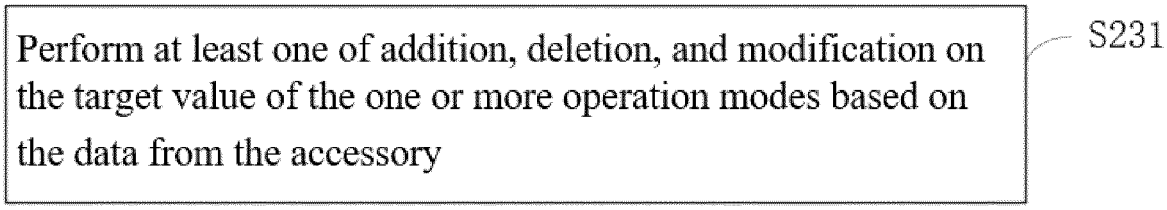

FIG. 23

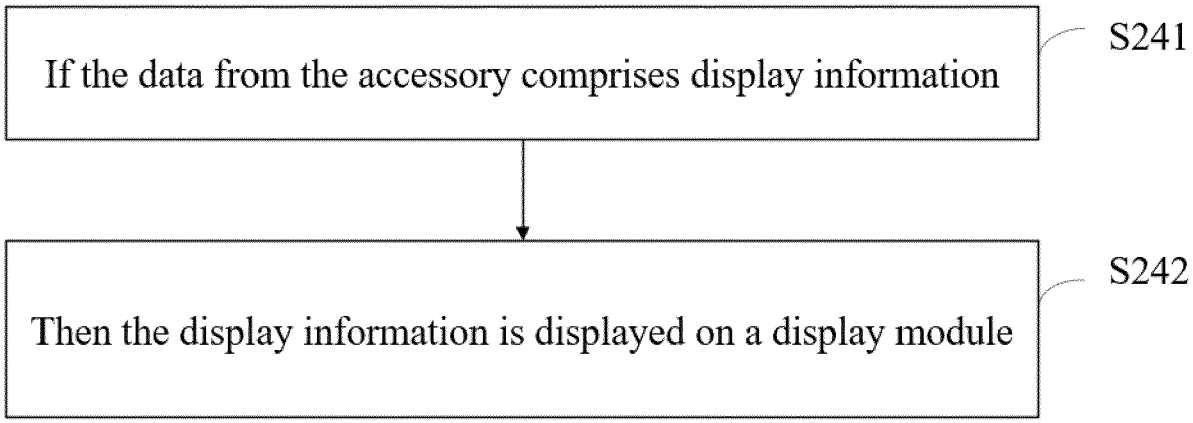

FIG. 24

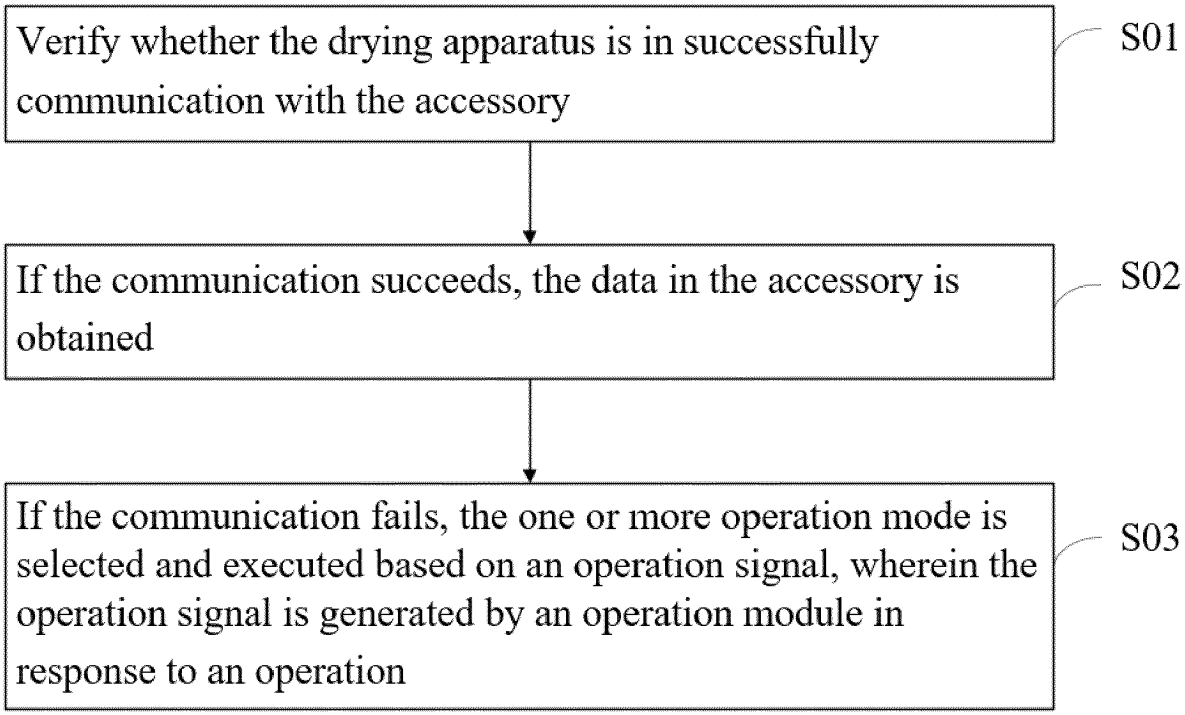
Verify whether the drying apparatus is in successfully communication with the accessory
S01
If the communication succeeds, the data in the accessory is obtained
S02
If the communication fails, the one or more operation mode is selected and executed based on an operation signal, wherein the operation signal is generated by an operation module in response to an operation
S03

FIG. 25

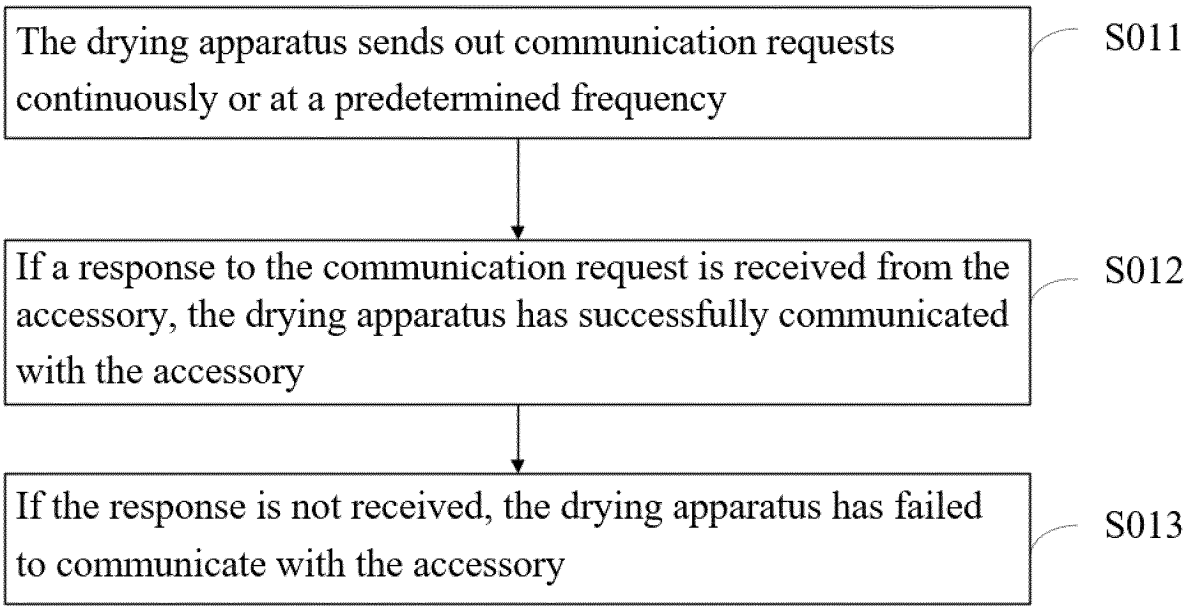
The drying apparatus sends out communication requests continuously or at a predetermined frequency
S011
If a response to the communication request is received from the accessory, the drying apparatus has successfully communicated with the accessory
S012
If the response is not received, the drying apparatus has failed to communicate with the accessory
S013

FIG. 26

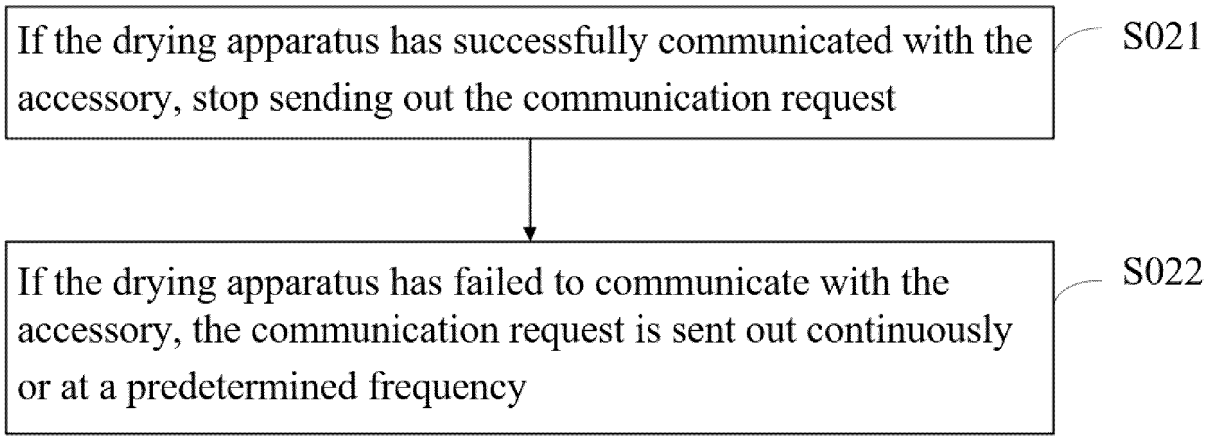
If the drying apparatus has successfully communicated with the accessory, stop sending out the communication request
S021
If the drying apparatus has failed to communicate with the accessory, the communication request is sent out continuously or at a predetermined frequency
S022

FIG. 27

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/125834

A. CLASSIFICATION OF SUBJECT MATTER

A45D20/12(2006.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: A45D20, F26B25/02

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)

CNABS, CNTXT, WPABS, OETXT, CNKI: 风嘴, 通信, 通讯, 信号, 存储, 储存, 数据, 信号, 指令, 删除, 修改, 增加, nozzle, storage, data, signal, cnommunication, order, delete, add, edit, modify

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 109645651 A (DREAME TECHNOLOGY (TIANJIN) CO., LTD.) 19 April 2019 (2019-04-19) entire document	1-58
A	CN 215776122 U (GUANGDONG MEIXI TECHNOLOGY CO., LTD. et al.) 11 February 2022 (2022-02-11) entire document	1-58
A	CN 216089313 U (GUANGDONG BAISHENGTU TECHNOLOGY CO., LTD.) 22 March 2022 (2022-03-22) entire document	1-58
A	CN 217161290 U (SHENZHEN SOOCAS TECHNOLOGY CO., LTD.) 12 August 2022 (2022-08-12) entire document	1-58
A	US 2019098978 A1 (OREAL) 04 April 2019 (2019-04-04) entire document	1-58

☑ 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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"E" earlier application or patent but published on or after the international filing date
"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
16 July 2023	**18 July 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/CN2022/125834

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2022071367 A1 (TINECO INTELLIGENT TECHNOLOGY CO., LTD.) 10 March 2022 (2022-03-10) entire document	1-58

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

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2022/125834

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 109645651 A	19 April 2019	None	
CN 215776122 U	11 February 2022	None	
CN 216089313 U	22 March 2022	None	
CN 217161290 U	12 August 2022	None	
US 2019098978 A1	04 April 2019	US 10470545 B2	12 November 2019
US 2022071367 A1	10 March 2022	WO 2020125807 A1	25 June 2020

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