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(54) **BLOWING SYSTEM WITH EXPANDABLE FUNCTIONS, EXPANSION DEVICE, AND OPERATING METHOD**

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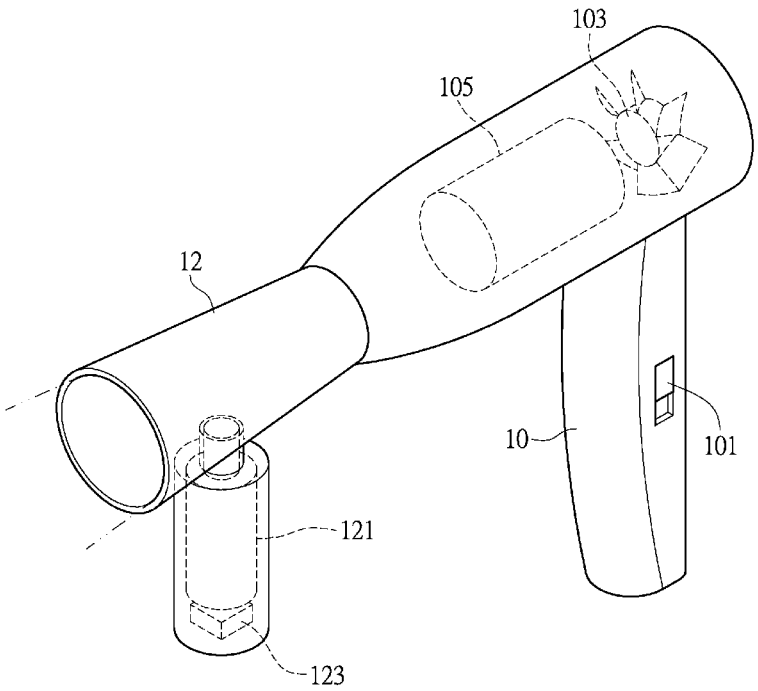
(57) **ABSTRACT**

The disclosure is related to a blowing apparatus with expandable functions, an expansion device, and an operating method. The blowing apparatus has an electrical interface used to connect one of the expansion devices with various functions. The blowing apparatus has a control unit used to identify an operating mode of the expansion device connected with the blowing apparatus. A control signal is therefore generated. According to the control signal, the control unit controls rotating speed of a fan unit and a heating temperature of a heating unit. The expansion device can be disposed with a mist unit having a container and a mist generating unit. The mist unit sprays the mist to an outlet cap of the expansion device. The blowing apparatus then blows the mist out of the outlet cap by means of the rotating speed of fan unit and the temperature of heating unit.



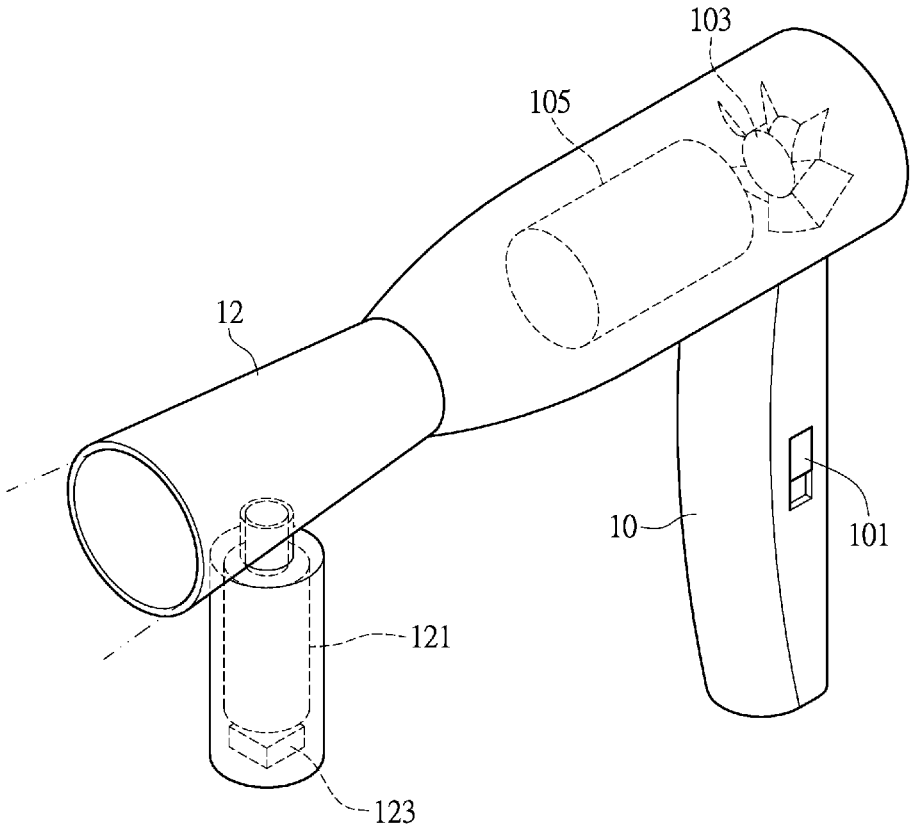


FIG. 1A

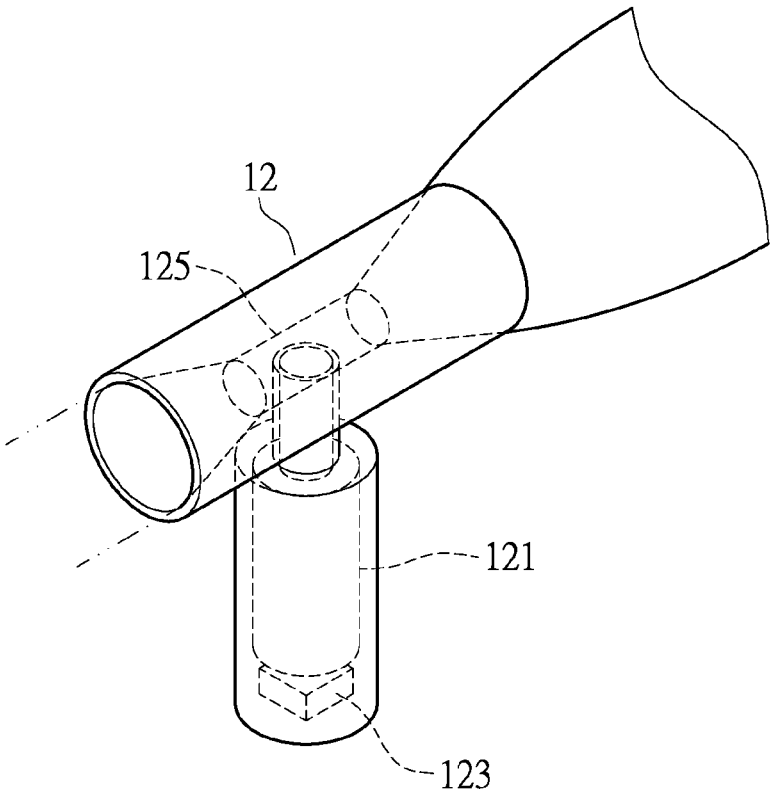


FIG. 1B

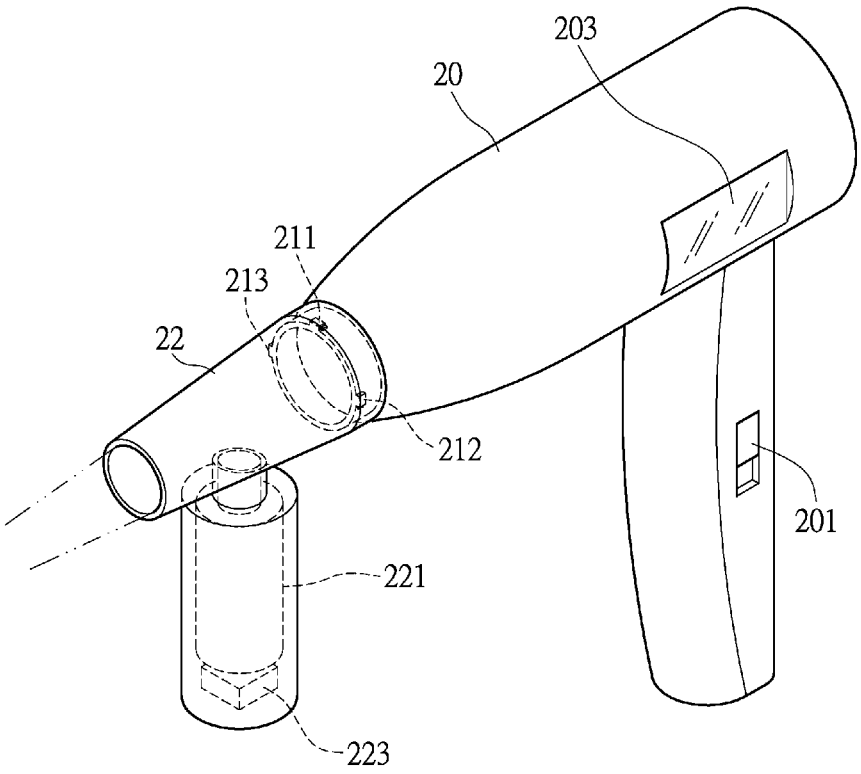


FIG. 2

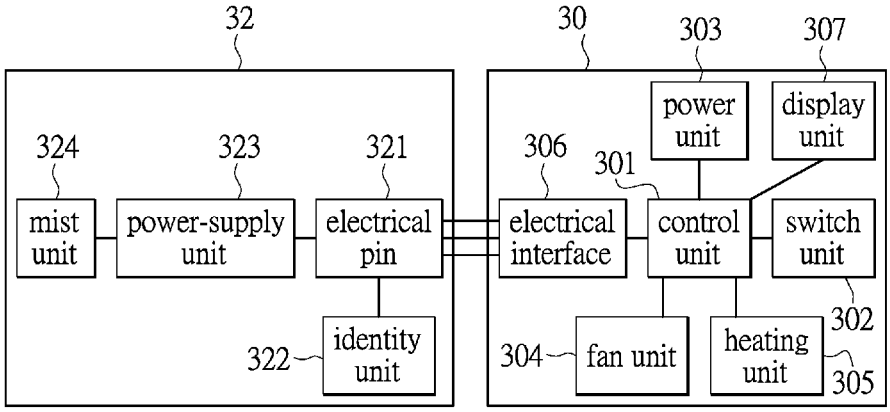

32
30
303
307
power unit
display unit
324
323
321
306
301
mist unit
power-supply unit
electrical pin
electrical interface
control unit
switch unit
302
identity unit
322
304
fan unit
heating unit
305

FIG. 3

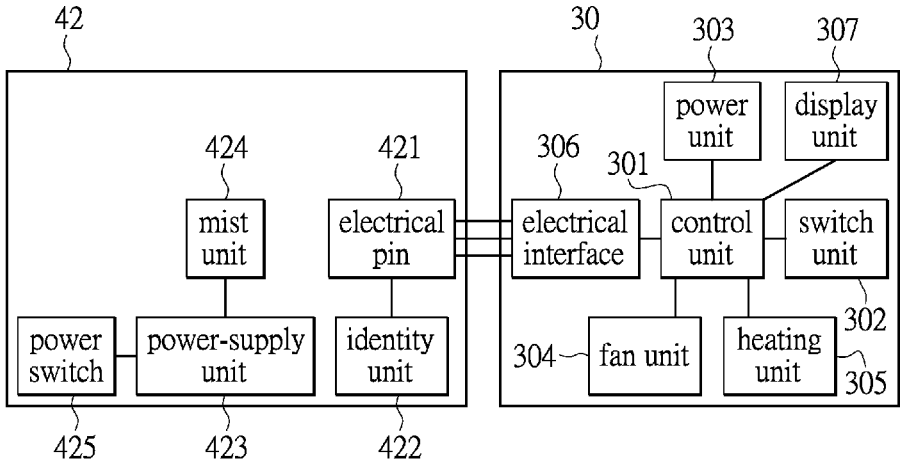

42
30
303
307
power unit
display unit
424
421
306
301
mist unit
electrical pin
electrical interface
control unit
switch unit
302
power switch
power-supply unit
identity unit
304
fan unit
heating unit
305
425
423
422

FIG. 4

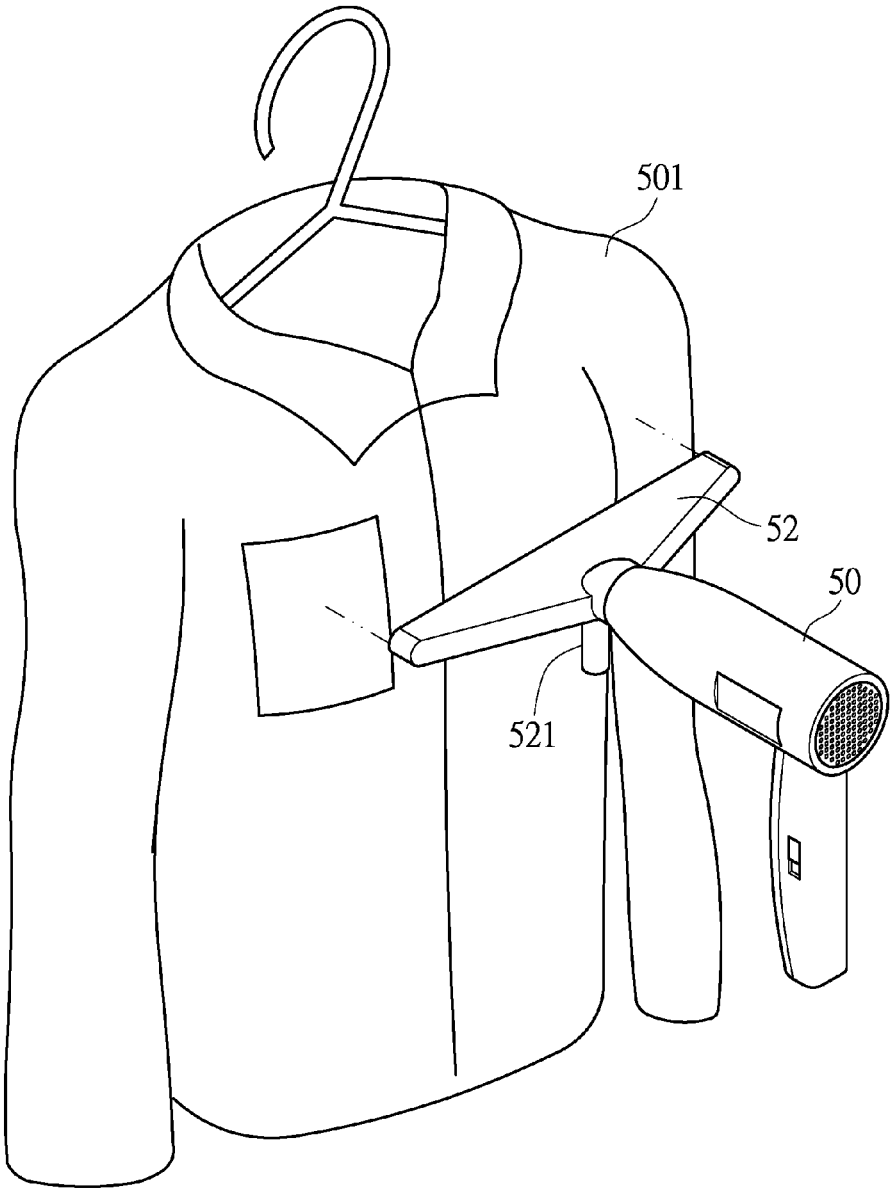


FIG. 5A

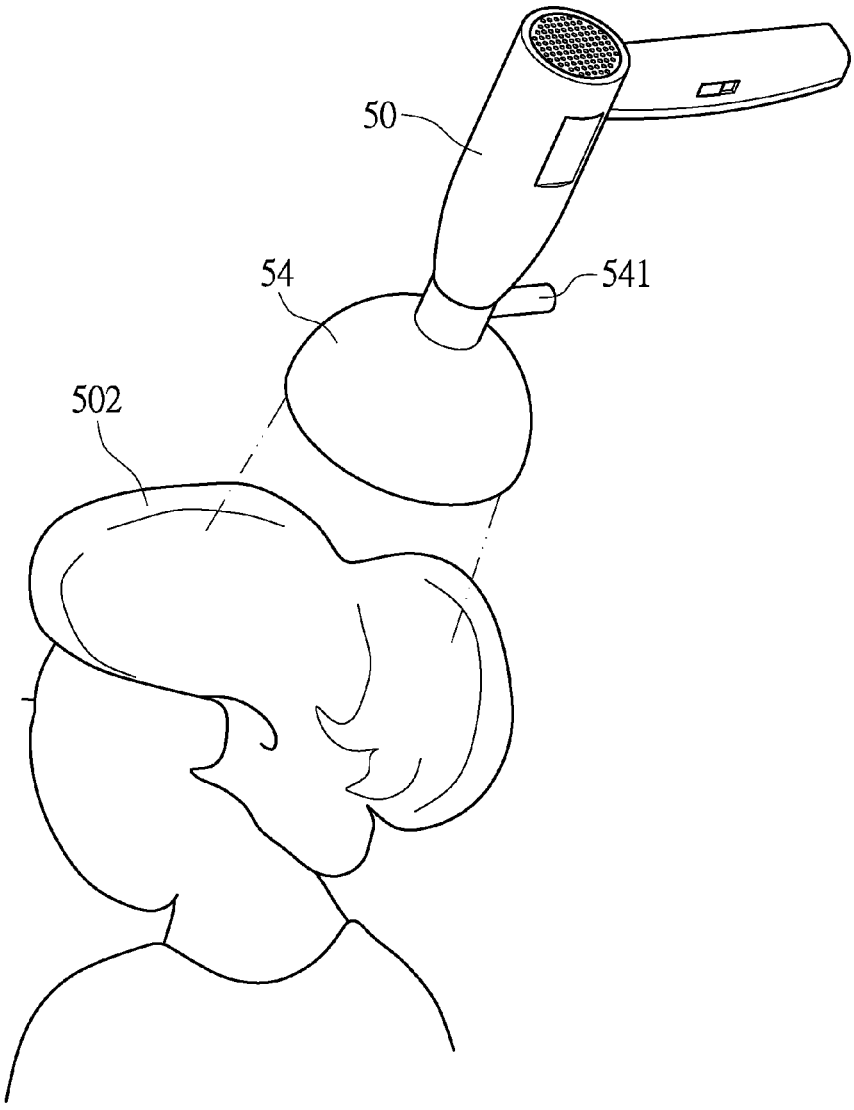


FIG. 5B

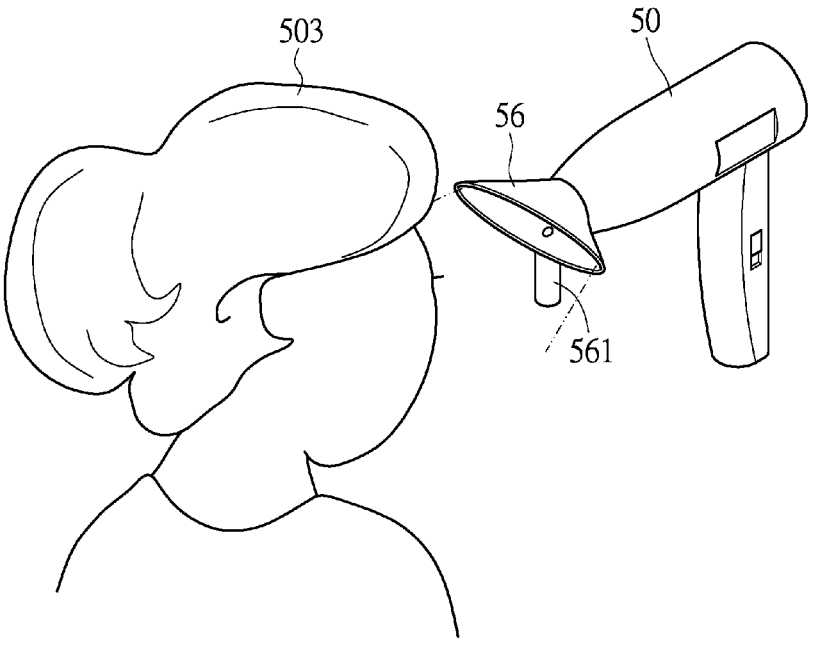


FIG. 5C

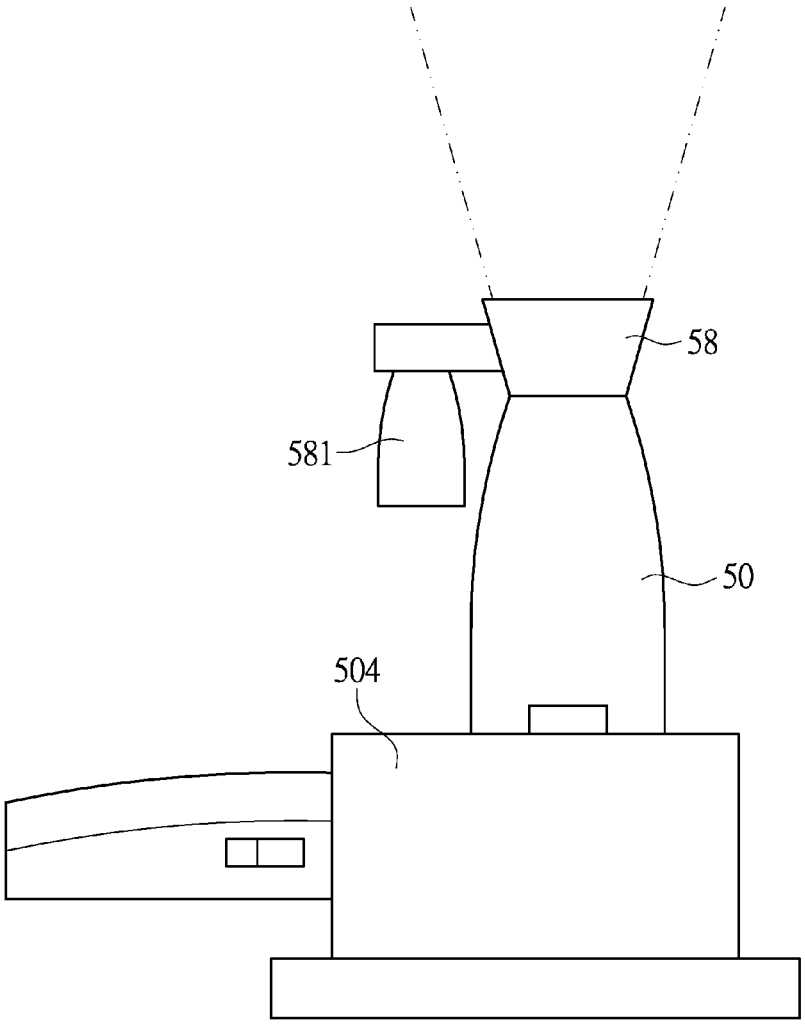


FIG. 5D

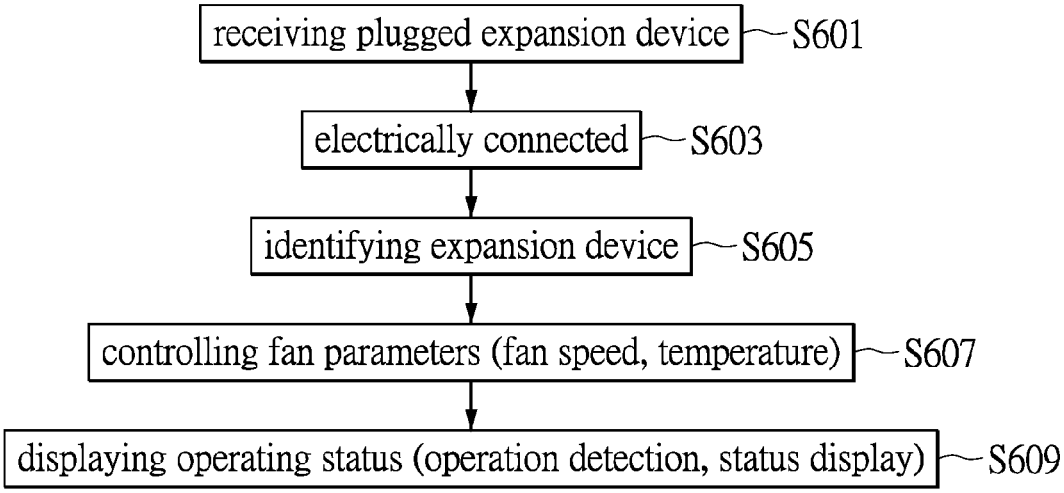

receiving plugged expansion device
S601
electrically connected
S603
identifying expansion device
S605
controlling fan parameters (fan speed, temperature)
S607
displaying operating status (operation detection, status display)
S609

FIG. 6

BLOWING SYSTEM WITH EXPANDABLE FUNCTIONS, EXPANSION DEVICE, AND OPERATING METHOD

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention is related to a blowing system including a blowing apparatus and a related expansion device; in particular to the blowing apparatus that is able to automatically tune its operating parameters according to an identification code, and its expansion device and an operating method for the blowing apparatus.

[0003] 2. Description of Related Art

[0004] Appliances for specific uses are often seen in daily life. For example, the device for spraying mist, such as a garment steamer that uses steam to make clothes flat. In the operation of the garment steamer, the water in a container is heated so as to generate steam. The steam is sprayed out through a spout. The high-temperature steam makes the fibers of the hanging clothes to be flattened.

[0005] The mist device is such as a face-steaming device for beautifying skin. The mist device sprays the steam to the human face by heating the water to be steam that is guided to a human face. The steam renders the functions that are used to cleanse the skin and also make the skin tender.

[0006] A humidifier may be required in an indoor room when a user feels uncomfortable due to the relatively dry air. The mist sprayed out may make the indoor room slightly moist. Additionally, the water in the container may be added with fragrances or essential oils that are able to clean air.

[0007] However, according to the conventional technologies, they lack a solution for integrating the multiple functions since every steamer is merely used for one single function.

SUMMARY OF THE INVENTION

[0008] Various devices that are able to generate mist for achieving specific functions have the similar principle of operations. The mist device allows the water to be heated or vibrated to be steam out of its container. The disclosure in accordance with the present invention is related to a blowing system having a blowing apparatus capable of expanding its function, an expansion device, and an operating method. The expansion device may be the mist device.

[0009] According to one aspect of the present invention, the blowing apparatus in a system includes a control unit used to identify an operating mode of an expansion device of the blowing apparatus, and generate an identity signal according to the operating mode. The blowing apparatus has an electrical interface for connecting with the expansion device. The electrical interface includes one or more electrical pins and a connector that is used to electrically connect with and lock the expansion device.

[0010] The blowing apparatus includes a fan unit whose rotating speed is controllable in response to the identity signal generated by the control unit. The rotating speed can be adjustable/controllable. The blowing apparatus includes a heating unit. The temperature of the heating unit can be adjustable/controllable in response to the identity generated by the control unit.

[0011] According to one of the embodiments, the expansion device obtains electric power from its connected blowing apparatus. The expansion device may also have its independent power supply. The expansion device includes a connection interface having one or more contact pins corresponding to one or more electrical pins of the blowing apparatus. The connection interface of the expansion device has a connecting structure used to lock the blowing apparatus. The expansion device has an identification unit recording its operating mode. The identification unit is provided for the control unit of the blowing apparatus to identify the operating mode of the expansion device.

[0012] The expansion device can be a mist-type expansion device. The mist-type expansion device has a mist unit having a container and a mist generating unit. The mist generating unit vibrates the liquid in the container to generate/create the mist to an outlet cap of the expansion device. Then the fan unit blows/sucks the mist out of the expansion device with a rotating speed based on its operating mode; and/or the heating unit heats the mist to reach a temperature.

[0013] In the method for operating the blowing system with expandable function, the expansion device connected to the blowing apparatus is firstly identified to operate an operating mode from the identification unit. For example, the identification unit can identify the operating mode of the expansion device through the one or more electrical pins.

[0014] The identified operating mode controls a rotating speed of a fan unit, and/or a temperature of the heating unit of the blowing apparatus. In one embodiment, the mist generated by a mist unit can be blown/sucked out of an outlet cap of the expansion device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. **1**A shows a schematic diagram depicting a system including a blowing apparatus capable of expanding function and its expansion device in one embodiment of the present invention;

[0016] FIG. **1**B shows one more schematic diagram depicting the system including the blowing apparatus and an expansion device with Venturi tube and mist generating unit in another embodiment of the present invention;

[0017] FIG. **2** shows a schematic diagram depicting a system including the blowing apparatus capable of expanding function and its expansion device according to one further embodiment of the present invention;

[0018] FIG. **3** shows a block diagram of circuits implementing the system including the blowing apparatus and the expansion device in one embodiment of the present invention;

[0019] FIG. **4** shows another block diagram of circuits implementing the blowing apparatus and the expansion device according to one of the embodiments of the present invention;

[0020] FIG. **5**A through FIG. **5**D schematically show the blowing apparatus in multiple types of embodiments of the present invention;

[0021] FIG. **6** shows a flow chart describing an operating process for operating the system according to one embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] The present invention now will be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many

different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

[0023] The disclosure in accordance with the present invention is related to a blowing system including a blowing apparatus and an expansion device. The blowing apparatus can operate as a normal hair dryer. Like a hair dryer, the blowing apparatus essentially has a grip, a rear-end inlet, a front-end outlet, and a switch. The switch can be used to switch the modes to various temperatures and fan speeds. Inside the blowing apparatus, the essential components for the apparatus to function such as a heating coil and a fan are included. The apparatus allows a user to switch the functions among some typical modes with various combinations of fan speeds and temperatures. The blowing apparatus in accordance with the present invention may include full or partial functional capability. The blowing apparatus can particularly function using parameters to operate the fan unit and heating unit therein due to its connected expansion device. The blowing apparatus is allowed to expand its functional capability while it connects with the various expansion devices in accordance with the present invention.

[0024] Reference is made to FIG. **1**A depicting a system including a blowing apparatus and an expandable function according to one of the embodiments of the present invention.

[0025] The blowing apparatus **10** has a grip allowing a user to handhold the body of the apparatus **10**. The blowing apparatus **10** has an outlet where the expansion device is mounted. In an exemplary example, the expansion device is such as a mist-type expansion device **12**. It is noted that the scope of the expansion device for expanding the functions of the blowing apparatus **10** may not be limited to the embodiment described in this figure.

[0026] The mist-type expansion device has a container **121**, as shown in the drawing, a fan unit of the blowing apparatus **10** blows out the articles in the container **121**. For example, the container **121** contains soap water, and a stirrer, a vibrator, or a supersonic piezo actuator may be provided to create bubbles.

[0027] In a schematic diagram, the blowing apparatus **10** is equipped with a power switch **101** to turn on or turn off the apparatus **10**. The power switch **101** can be used to select one of the multi-stage fan speeds and temperatures. The blowing apparatus **10** includes a control circuit (not shown in this figure). The primary components connected with the control circuit are such as a fan unit **103** and a heating unit **105**. The rotating speed of the fan unit **103** and heating efficiency of the heating unit **105** can be automatically adjusted according to an identity signal.

[0028] A mechanical structure can be used to lock the expansion device **12** at the outlet of the blowing apparatus **10**. Further, an electrical component can also be disposed at the outlet of the blowing apparatus **10**. The expansion device **12**, in the example, is a device for generating mist. The container **121** contains water, liquid, or other substance. A mist generating unit **123** is also included at a portion of the expansion device **12**. The mist generating unit **123** is a kind of vibrator, or a supersonic piezo actuator, or a stirrer that is used to vibrate the substance in the container **121**. The liquid or substance in the container **121** can be vibrated to form water/liquid mist or other misted substance. The mist may also be mixed with other substances.

[0029] The mist-type expansion device **12** exemplarily forms an outlet cap combined with the blowing apparatus **10**. The shape of the outlet cap may be altered based on its proprietary function. One of the objectives is to blow out the mist for a specific purpose. The blowing apparatus **10** is cooperated with the mist-type expansion device **12** for providing corresponding fan speed and temperature of air.

[0030] It is noted that the mist-type expansion device may be the expansion device for generating steam or bubbles by heating the substance in the container of the expansion device.

[0031] FIG. **1**B shows another diagram depicting the blowing system with the apparatus and another expansion device in accordance with the present invention. For enhancing the effect of spraying the mist, an airflow tube **125**, e.g. a venturi tube, may be included in the mist-type expansion device **12**. It is noted that the venturi tube with an altering cross section can be disposed inside the outlet cap of the expansion device. In the example shown in the diagram, the airflow tube **125** has double tapers that alter from a bigger cross section, to a smaller cross section and to another bigger cross section. The continuous changes of areas of the cross sections of the airflow tube **125** generate pressure difference that changes the speed of fluid in the tube **125**. According to a principle of equal volume of fluid flowing through every cross section in the tube at the same time, the cross section with smaller area increases a flow rate with smaller pressure when the blowing apparatus **10** generates air flow into the tube **125**. Further, the use of smaller pressure can inhale more mist and also enhance the effect of the mist.

[0032] The diagram shows the airflow tube **125** with altering cross sections is disposed in the outlet cap of the expansion device **12**. The airflow tube **125** changes the flow rate of the mist sprayed to the outlet cap. When the mist generating unit **123** vibrates the substance in the container **121**, the mist enters the airflow tube **125**, and the enhanced air flow pushes the mist out of the outlet cap.

[0033] In FIG. **2**, another example shows a system including the blowing apparatus and an expansion device in one embodiment of the present invention. A display screen **203** may be mounted upon the blowing apparatus **20**. The display screen **203** connects to internal display circuits, and displays operational messages retrieved from inside circuits. For example, the display screen **203** displays power indication, temperature, and fan speed. The display screen **203** can show information related to the operating mode of the connected expansion device and/or its function. The blowing apparatus **20** has a power switch **201** that can be a common power switch, or a switch allowing the user to switch to one of the operating modes; or manually switch the multi-stage fan speeds and/or temperatures.

[0034] The expansion device in the present example can be a mist-type expansion device **22**. The expansion device has a structure for locking the mist-type expansion device **22**. The expansion device **22** can be locked to the blowing apparatus **20** by a rotatable structure. The expansion device **22** can utilize a latch to engage with the blowing apparatus **20**. The expansion device **22** may also be set into the blowing apparatus **20** through a particular mechanical design. Further, a magnetic connector can be used to combine the blowing apparatus **20** and the expansion device **22**. The contact pins of the expansion device **22** may be inte-

grated in the magnetic connector. While the blowing apparatus **20** is combined with the mist-type expansion device **22**, the mentioned connecting structure helps to align the expansion device **22** and the blowing apparatus **20**. The contact pin(s) can correspondingly contact with the electrical pin(s) **211**, **212**, **213** for transferring electric power, and allowing for identifying the operating mode of the expansion device **22**. The contact pin is configured to be one or more pins.

[0035] The expansion device **22** is essentially used to spray the mist generated from the liquid or substance in the container **221**. The mist generating unit **223** generates the mist through vibration or another scheme. The mist is sprayed out of the outlet of the container **221**, and enters the outlet cap of the expansion device **22**. The blowing apparatus **20** blows the air under a fan speed and a temperature. The mist generated by the mist-type expansion device **22** produces mist with a specific effect due to the shape of the outlet cap.

[0036] Reference is made to FIG. **3** describing a block diagram of the blowing system in one embodiment of the present invention. The block diagram includes the essential circuit components of the blowing apparatus and the components of the expansion device.

[0037] The blowing apparatus **30** includes a control unit **301** which is a control circuit electrically connected to other circuit components. The circuit unit **301** is used to process signals among the circuit components of the blowing apparatus **30**. The control unit **301** determines the type of the expansion device **32** according to the electrical features of the expansion device **32**. For example, this expansion device is identified by its operating mode rendered by a mist-type expansion device **32** connected with the blowing apparatus **30**. The operating mode can be recognized according to the identity signal.

[0038] The blowing apparatus **30** has a switch unit **302** for switching power supply. The switch unit **302** can be a multi-stage switch for manually switching the multiple operating modes. The blowing apparatus **30** includes a power unit **303** that is a power control circuit for this apparatus using an AC power or a DC power.

[0039] The blowing apparatus **30** has an electrical interface **306** that is positioned around the outlet of the blowing apparatus **30**. The electrical interface **306** including one or more electrical pins is at the position contacted with the expansion device **32**. The electrical pin(s) can be correspondingly connected with the contact pin(s) **321** of the expansion device **32**. The connection interface, or part of the electrical interface **306**, has a connector structure for locking the mist-type expansion device **32**.

[0040] The blowing apparatus **30** has a fan unit **304**. The fan unit **304** is electrically connected with the control unit **301**. The control unit **301** controls the rotating speed of the fan unit **304** in response to the identity signal. The rotating speed can be adjustable or controllable, for example, it can be increased, maintained as original, decreased, or changed over time as required. A heating unit **305** is electrically connected with the control unit **301**. By the control unit **301**, the adjustable/controllable temperature of the heating unit **305** can be controlled according to the identity signal so as to raise temperature, maintain original temperature, lower temperature, or change temperature over time.

[0041] The blowing apparatus **30** may have a display unit **307** which is electrically connected with the control unit **301**. The display unit **307** embodies a display screen mounted upon the housing of the blowing apparatus **30**. For example, the display screen **203** of FIG. **2** can be an LED or LCD display. The display unit **307** is used to display messages based on the signals instructed by the control unit **301**. The messages displayed on the display screen are such as state of electric power supplied to the apparatus, the type and function of the connected expansion device, the output temperature of the heating unit **305**, and/or the rotating speed of the fan unit **304**.

[0042] The mist-type expansion device **32** is in fact an external device to the blowing apparatus **30**. The expansion device **32** can be locked to the blowing apparatus **30** via a locking structure. The outlet cap of the expansion device **32** is designed for a specific function. The identification information with respect to the expansion device **32** is related to its type and an operating mode. The connection interface for combining the blowing apparatus **30** and the expansion device **32** includes one or more electrical pins forming the electrical interface **306**. The information recorded by the electrical pins allows the control unit **301** of the blowing apparatus **30** to recognize the expansion device **32**, including its operating mode. In an exemplary example, the connection interface of the expansion device **32** has a locking member with respect to the connecting structure of the blowing apparatus **30**. Further, the connection interface has the contact pin(s) **321** correspondingly contacted with the electrical pin(s) when the two devices are assembled.

[0043] A power-supply unit **323** is disposed in the expansion device **32**. The power-supply unit **323** supplies requisite power to operate the mist-type expansion device **32**. The power-supply unit **323** is electrically connected to the contact pin(s) **321** connection interface between the two devices. Through the contact pin(s) **321** and the electrical interface **306**, the electric power of the blowing apparatus **30** can be transferred to the expansion device **32**.

[0044] The expansion device **32** has an identification unit **322** electrically connected with one or more contact pins **321** of the connection interface of the expansion device **32**. The identification unit **322** can be a circuit assembly forming an identification circuit, a dip switch, or a memory for recording the identification code of the expansion device **32**. The identification unit **322** records the operating mode of the expansion device **32**. The operating mode is provided for the control unit **301** of the blowing apparatus **30** to identify the expansion device **32**.

[0045] The mist-type expansion device **32** includes a mist unit **324**. The mist unit **324** has a container and a mist generating unit. The power-supply unit **323** supplies power to the mist unit **324**. The mist generating unit is driven to mist the liquid or substance in the container. The liquid or the substance is misted and sprayed out of the outlet cap of the expansion device **32**.

[0046] While the mist-type expansion device **32** is combined with the blowing apparatus **30**, the control unit **301** identifies the expansion device **32** and its operating mode by its identification unit **322**. The control unit **301** controls the operating parameters for the blowing apparatus **30** according to the identified operating mode of the expansion device **32**. The operating parameters are such as a rotating speed of the fan unit **304** and/or the temperature of the heating unit **305**. In one further embodiment, the mist unit **324** can be elec-

trically connected to the contact pin(s) **321**, and can be controlled to adjust density of the mist produced by the mist unit **324**.

[0047] FIG. **4** shows another block diagram describing the circuits of the blowing apparatus in one further embodiment of the present invention.

[0048] The blowing apparatus **30** essentially includes a control unit **301**, a switch unit **302**, a power unit **303**, a fan unit **304**, heating unit **305**, and an electrical interface **306**. The control unit **301** also controls the operating parameters according to the identified operating mode of the expansion device. A display unit **307** may also be included in the blowing apparatus **30**.

[0049] In the present example, the expansion device has an independent power supply, e.g. a power-supply unit **423**. This power supply supplies power to a mist unit **424** which is electrically connected with a power-supply unit **423**. A power switch **425** is also provided. The power-supply unit **423** can be a battery set, or a circuit connected to an AC power. The power switch **425** can be a common switch. The power switch **425** can be electrically connected to the connection interface between the expansion device **42** and the blowing apparatus **30**. The expansion device **42** is activated once the two devices are correctly coupled.

[0050] The expansion device **42** includes contact pin(s) **421** corresponding to the electrical pin(s) of the blowing apparatus **30**. The expansion device **42** has an identification unit **422** for recording the information provided for the blowing apparatus **30** to identify its connected expansion device **42**.

[0051] The operating mode of the mist-type expansion device can be a steam iron mode, a hair-moisturizing mode, a steam-beauty mode, or a humidifying mode. The operating mode corresponds to a set of operating parameters for operating the fan unit and the heating unit of the blowing apparatus **30**. In one further embodiment, the density of mist produced by the mist unit may also be referred to in the operating mode. FIG. **5**A through FIG. **5**D respectively describes various types of the blowing apparatus of the present invention. It is noted that the scope of the present invention is not limited to the embodiments described in the disclosure.

[0052] FIG. **5**A schematically shows a blowing apparatus implementing a garment steamer by combining an expansion device in one embodiment of the present invention.

[0053] The combination of the blowing apparatus **50** and a mist-type expansion device **52** embodies a device for hanging and ironing clothes **501**. The outlet cap is configured to fit the requirement of the garment steamer. When the blowing apparatus **50** and the expansion device **52** are combined, the control circuit of the blowing apparatus **50** identifies the operation mode of the expansion device **52**, and accordingly adjusts operating parameters for the fan unit and heating unit.

[0054] A mist unit **521** of the expansion device **52** has a container for containing a liquid or substance. After the rotating speed of the fan unit and temperature of the heating unit have been adjusted or controlled, a mist generating unit produces the mist, and the mist is sprayed out of the outlet cap. The output mist with the fan speed and the temperature can be used to iron the clothes **501**.

[0055] FIG. **5**B shows another schematic diagram of the blowing apparatus implementing a hair humidifier in one embodiment of the present invention.

[0056] The blowing apparatus **50** is combined with another mist-type expansion device **54**. The mist-type expansion device **54** is used to humidify hair **502**. A mist unit **541** in the expansion device **54** generates mist. The mist enters the outlet cap of the expansion device **54**. The operating parameters for the fan unit and heating unit of the blowing apparatus **50** are configured according to its operating mode. Therefore, a suitable fan speed and temperature are applied to the mist sprayed in the outlet cap. Therefore, the hair can be humidified through this combination of the blowing apparatus **50** and the expansion device **54**.

[0057] FIG. **5**C shows a schematic diagram of the blowing apparatus **50** implementing a steaming device as combined with an expansion device **56**. The blowing apparatus **50** is combined with the mist-type expansion device **56** having a specific type of outlet cap. When a mist unit **561** in the expansion device **56** sprays the mist, the fan unit and heating unit of the blowing apparatus **50** allow the mist to be blown under a specific rotating speed and a heating temperature. The outlet cap further allows the mist to be output within a specific range for steaming the human face **503**.

[0058] FIG. **5**D shows a schematic diagram of another type of expansion device combined with the blowing apparatus that serves as an indoor humidifier or water-oxygen machine The blowing apparatus **50** connects to the mist-type expansion device **58** that is fixed in a base **504**. The outlet cap is configured to have an upward opening The outlet cap can also be other configurations as required. The mist-type expansion device **58** has a mist unit **581** that produces mist entering to the outlet cap. The blowing apparatus **50** adjusts its operating parameters based on the identified operating mode of the mist-type expansion device **58**. The mist is blown out under the specified fan speed and temperature so as to embody a humidifier or a water-oxygen machine

[0059] The process in one embodiment to operate the blowing system with the apparatus combined with an expansion device for achieving a specific function is referred to the flow chart shown in FIG. **6**.

[0060] In the beginning, such as in step S**601**, the blowing apparatus is connected with a mist-type expansion device via a connection interface. The connection interface is correspondingly coupled to the electrical interface of the blowing apparatus, such as in step S**603**. The control unit of the blowing apparatus can acknowledge a mist-type expansion device has been connected with the blowing apparatus. The control unit also identifies the expansion device, such as in step S**605**, and acknowledges an operating mode of the expansion device. The control unit then determines a set of operating parameters by reading an identification code from the expansion device. The operating parameters are related to a rotating speed of a fan in the blowing apparatus and/or a temperature of a heater, or adding the density and flow rate of the mist. The rotating speed of the fan can be adjustable or controllable. The temperature of the heater can be adjustable or controllable, for example the temperature can be raised, maintained as original temperature, lowered or changed over time.

[0061] Next, the control unit of the blowing apparatus controls the operating parameters such as the fan speed and temperature of the heater, such as in step S**607**. The mist unit sprays the mist into the outlet cap of the expansion device, such as in step S**609**, the operating status can be displayed through a display screen.

[0062] Thus, when the blowing apparatus with expandable function is in operation, the blowing apparatus can determine the type of the expansion device, and also acquire its operating parameters. The operating parameters are such as a temperature of a heating unit and a rotating speed of a fan unit. Then the blowing apparatus can be configured for achieving a specific function using the operating parameters.

[0063] It is intended that the specification and depicted embodiment be considered exemplary only, with a true scope of the invention being determined by the broad meaning of the following claims.

What is claimed is:

1. A system including a blowing apparatus with expandable function and an expansion device, comprising:

the blowing apparatus comprising:

a control unit, used to identify an operating mode of the expansion device being connected with the blowing apparatus, and generate an identity signal according to the operating mode of the expansion device, and processing signals for the blowing apparatus;

an electrical interface, electrically connected with the control unit, including one or more electrical pins for electrically connecting to the expansion device;

a fan unit, electrically connected with the control unit, used to control a rotating speed according to the identity signal generated by the control unit;

a heating unit, electrically connected with the control unit, used to control a temperature according to the identity signal; and

a display unit, electrically connected with the control unit, used to indicate operating status of the blowing apparatus;

the expansion device applied to the blowing apparatus, comprising:

a connection interface configured to have one or more contact pins corresponding to one or more electrical pins of the blowing apparatus, and a locking member with respect to a connecting structure of the blowing apparatus;

an identification unit, electrically connected with the one or more contact pins of the connection interface, used to record the operating mode of the expansion device, and allow the control unit of the blowing apparatus to identify the operating mode of the expansion device;

wherein, while the expansion device is connected to the blowing apparatus, the control unit of the blowing apparatus acknowledges the operating mode of the expansion device from the identification unit, and the control unit controls the rotating speed of the fan unit of the blowing apparatus, and/or the temperature of the heating unit according to the identified operating mode of the expansion device.

2. The blowing apparatus according to claim **1**, wherein the blowing apparatus having a connection interface for connecting to the expansion device, and the connection interface includes one or more electrical pins that are used to identify the operating mode of the expansion device.

3. The blowing apparatus according to claim **2**, wherein the one or more electrical pins are used to transfer power to the expansion device.

4. An expansion device applied to a blowing apparatus with expandable function, comprising:

a connection interface configured to have one or more contact pins corresponding to one or more electrical pins of the blowing apparatus, and a locking member with respect to a connecting structure of the blowing apparatus;

an identification unit, electrically connected with the one or more contact pins of the connection interface, used to record an operating mode of the expansion device, and allow a control unit of the blowing apparatus to identify the operating mode of the expansion device;

wherein, while the expansion device is connected to the blowing apparatus, the control unit of the blowing apparatus acknowledges the operating mode of the expansion device from the identification unit, and the control unit controls a rotating speed of a fan unit of the blowing apparatus, and/or a temperature of a heating unit according to the identified operating mode of the expansion device.

5. The expansion device according to claim **4**, wherein the identification unit is a circuit assembly, or a memory recording an identification code of the expansion device.

6. The expansion device according to claim **4**, wherein the expansion device is a mist-type expansion device including a mist unit, a container and a mist generating unit, and is powered by a power-supply unit that allows the mist generating unit to generate mist sprayed out of an outlet cap of the mist-type expansion device by vibrating liquid in the container.

7. The expansion device according to claim **6**, wherein the operating mode of the mist-type expansion device is a steam iron mode, a hair-moisturizing mode, a steam-beauty mode, or a humidifying mode.

8. The expansion device according to claim **7**, wherein, a venturi tube with an altering cross section is disposed inside the outlet cap of the expansion device for enhancing the mist sprayed out of the outlet cap.

9. The expansion device according to claim **8**, wherein the identification unit is a circuit assembly, or a memory recording an identification code of the expansion device.

10. The expansion device according to claim **4**, wherein, a power-supply unit is provided, the power-supply unit is electrically connected with one or more contact pins of the connection interface, and the expansion device obtains electric power from the blowing apparatus.

11. The expansion device according to claim **10**, wherein the identification unit is a circuit assembly, or a memory recording an identification code of the expansion device.

12. An operating method for operating the system according to claim **1**, comprising:

identifying an expansion device connected with the blowing apparatus, and acquiring an operating mode of the expansion device, wherein the expansion device has an identification unit, and the expansion device is connected with an electrical interface of the blowing apparatus through a connection interface, and the operating mode is acquired from the identification unit via the one or more electrical pins;

in response to the operating mode, controlling a rotating speed of a fan unit of the expansion device; and/or controlling a temperature of a heating unit of the expansion device.

13. The blowing apparatus according to claim **12**, wherein the identification unit is a circuit assembly, or a memory recording an identification code of the expansion device.

14. The method according claim **12**, wherein the expansion device is a mist-type expansion device including a mist unit, a container and a mist generating unit, and is powered by a power-supply unit that allows the mist generating unit to generate mist sprayed out of an outlet cap of the mist-type expansion device by vibrating liquid in the container.

15. The blowing apparatus according to claim **12**, wherein, a power-supply unit is provided, the power-supply unit is electrically connected with one or more contact pins of the connection interface, and the expansion device obtains electric power from the blowing apparatus

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