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(54) CLEANING DEVICE BODY AND CLEANING DEVICE

(57) Provided is a cleaning device body and a cleaning device. The cleaning device body comprises a body (100), a control assembly (200), and a display assembly (300). The display assembly (300) comprises at least one displayer used for displaying the cleaning device body's operating state and located at a front side of the body (100)..

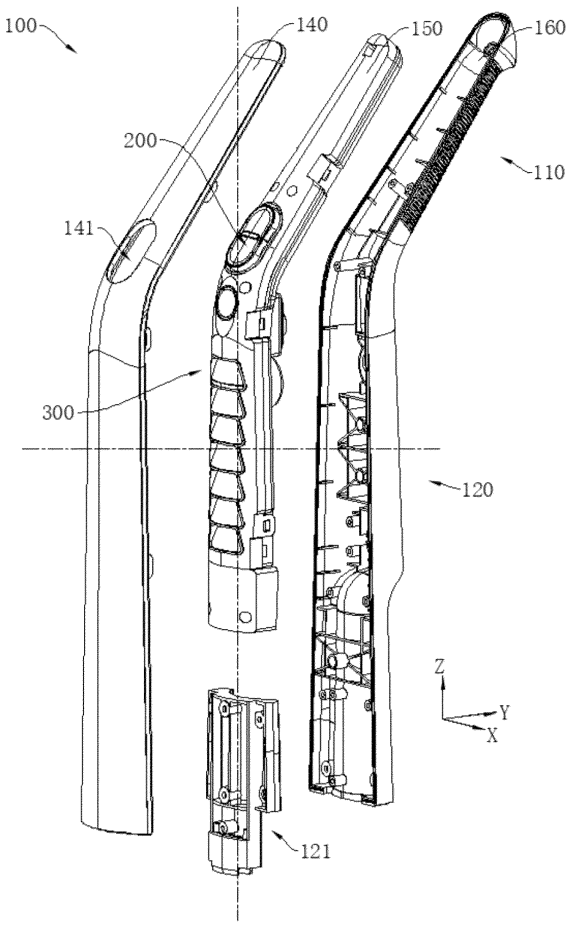

FIG. 1

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Description

[0001] The present application relates to the technical field of electrical cleaning devices for household use, and in particular, to a cleaning device body and a cleaning device.

[0002] As technology keeps developing and people's quality of life improves, dusting devices for household use, such as cleaning devices (for example, vacuum cleaners and floor scrubbers), appear more and more in people's life.

[0003] Currently, a cleaning device will have multiple different operating states during operation. A user needs to get information such as a cleaning device's battery level, cleaning mode, cleaning liquid amount, and floor cleanness, so as to adjust the state of the cleaning device based on cleaning progress and better accomplish cleaning.

[0004] However, with existing cleaning devices, it's inconvenient to observe information on their operating state.

[0005] In view of this, the present application provides a cleaning device body and a cleaning device, which are easy to operate and can facilitate observation of information on the device's operating state.

[0006] In a first aspect, the present application provides a cleaning device body comprising a body, a control assembly, and a display assembly;
the display assembly comprises at least one displayer used for displaying the cleaning device body's operating state and located at a front side of the body.

[0007] As such, it can be understood that, when using the cleaning device, a user needs to hold the body so as to operate the cleaning device such that it forms a certain angle with a surface to be cleaned, which facilitates cleaning. When the body is being held, the displayer is located at a front side of the body, which makes it convenient for a user to observe the cleaning device's state in a timely, rapid, and intuitive manner during cleaning and to operate the control to adjust the cleaning device's state.

[0008] In a possible mode of realization, in the cleaning device body provided by the present application, the displayer is arranged to tilt towards a lower side of the body.

[0009] As such, regardless of whether the body is in an upright state or a tilted state during operation, the displayer always forms a certain angle with the body. It can be understood that, generally, the cleaning device is lower than a user, when the user faces the cleaning device, the user's line of sight will be directed downward at an angle. The angle of the displayer relative to the body allows the displayer to tilt towards the user's line of sight, allowing the user to more clearly observe the displayer.

[0010] In a possible mode of realization, in the cleaning device body provided by the present application, the display assembly comprises at least two displayers which are arranged sequentially in a spaced apart manner in an extension direction of the body and tilt in a same direction at a same angle.

[0011] As such, the at least two displayers can display more operating states of the cleaning device, which allows a user to observe and perceive more information on the operating states. In addition, since the displayers are arranged sequentially in a spaced apart manner in an extension direction of the body, mutual obstruction between the displayers can be avoided and observation is facilitated.

[0012] In a possible mode of realization, in the cleaning device body provided by the present application, the control assembly comprises at least one of a switch controller and a cleaning mode controller.

[0013] As such, since at least one of the switch controller and the cleaning mode controller is arranged on a side face of the body, it's convenient for a user to rapidly control the switching of the cleaning device or switch the cleaning mode of the cleaning device while holding the body, which increases operation efficiency.

[0014] In a possible mode of realization, in the cleaning device body provided by the present application, the control assembly and the displayer are located at the same side of the body, the control assembly and the display assembly both facing a user when the body is being held.

[0015] As such, since the control assembly and the displayer are located on the same side of the body, it can be understood that, after a user observes the cleaning device's operating state which needs to be adjusted, the user can accomplish the adjustment by directly operating the control assembly while being able to observe the control assembly and the displayer at the same time. While the control assembly is being operated, the displayer reports the cleaning device's operating state, making it faster and more convenient.

[0016] In a possible mode of realization, in the cleaning device body provided by the present application, the body comprises a holding part and a mounting part that are sequentially arranged from top to bottom, the display assembly being at least partially located on the mounting part, the control assembly being located on the holding part, and the control assembly and the display assembly being adjacent to each other.

[0017] As such, the control assembly and the display assembly are of a compact structure, which facilitates operation and observation by a user.

[0018] In a possible mode of realization, in the cleaning device body provided by the present application, the body further comprises a base, an end of the mounting part opposite to the holding part having an electrical connection part inserted to the base.

[0019] As such, the electrical connection part realizes a removable connection between the base and the body, which facilitates repair and replacement of the body or the base while facilitating the modular storage or transportation of the cleaning device.

[0020] In a possible mode of realization, in the cleaning

device body provided by the present application, there is a first angle between the holding part and the mounting part;

when the cleaning device body is in an upright state, the mounting part is arranged vertically, and the holding part tilts towards a user located at a rear side of the body.

[0021] As such, with the holding part tilting towards a user, holding by the user is facilitated, resulting in an ergonomic configuration and making it more comfort when being used by the user.

[0022] In a possible mode of realization, in the cleaning device body provided by the present application, the first angle is larger than or equal to 120°, but smaller than or equal to 140°.

[0023] As such, while ensuring aesthetics, the user can tilt the holding part slightly to form a more comfortable angle with the user, making it easier for the user to operate and improving the user experience.

[0024] In a possible mode of realization, in the cleaning device body provided by the present application, the body comprises a body front cover, a body support, and a body rear cover, the body front cover being arranged to cover the body rear cover and form a receiving chamber together with the body rear cover, the body support being located in the receiving chamber.

[0025] As such, by arranging separately the body front cover and the body rear cover, on one hand, mounting of the body support can be facilitated, and on the other hand, replacement and repair of any one of the body front cover, body support, and body rear cover can be facilitated.

[0026] In a possible mode of realization, in the cleaning device body provided by the present application, the body support has a plurality of first mounting slots that are arranged sequentially in a spaced apart manner in an extension direction of the body support, the displayer being arranged in the first mounting slots correspondingly;

the at least one displayer comprises an operating state displayer and a power level displayer, a displayer located at an end among the displayers being the power level displayer and used for displaying a power level number, a remaining displayer being the operating state displayer and used for displaying an operating state of various functional parts of the cleaning device.

[0027] As such, by using displayers to display graphics or icons of power level and operating states, users can easily perceive the power level and changes in the device's state intuitively, and the first mounting slots provide mounting positions for the displayers.

[0028] In a possible mode of realization, in the cleaning device body provided by the present application, the support body has a second mounting slot and a third mounting slot;

the second mounting slot is located between the first mounting slot and the third mounting slot, the at least one displayer comprising a self-cleaning displayer arranged in the second mounting slot, the control assembly being arranged in the third mounting slot.

[0029] As such, the second mounting slot and the third mounting slot provide a mounting and supporting position respectively for the self-cleaning displayer and the control assembly. With the self-cleaning displayer arranged in the second mounting slot, it is close to the control assembly, which facilitates a user's operation of the self-cleaning displayerwhiling operating the control assembly.

[0030] In a possible mode of realization, in the cleaning device body provided by the present application, a displayer close to the control assembly is used for displaying a power level number, the displayer forming a second angle with a horizontal plane when the cleaning device body is in an upright state.

[0031] As such, when operating the control assembly, a user can quickly observe the power level, which makes it convenient for the user to take an action to switch the cleaning device body's operating state or to charge the cleaning device body, and with the displayer used for displaying a power level number forming a second angle with a horizontal plane when the cleaning device body is in an upright state, observation by a user is facilitated.

[0032] In a possible mode of realization, in the cleaning device body provided by the present application, the second angle is larger than or equal to 60°, but smaller than or equal to 80°.

[0033] As such, the displayer used for displaying a power level number can have a good viewing angle for a user's eyes, which is ergonomic and improves a user's viewing experience.

[0034] In a possible mode of realization, in the cleaning device body provided by the present application, when the cleaning device body is in an upright state, each displayer used for displaying an operating state of various functional parts of the cleaning device forms a third angle with a horizontal plane.

[0035] As such, observation by a user is further facilitated, and the operating state of various functional parts of the cleaning device is determined rapidly and intuitively.

[0036] In a possible mode of realization, in the cleaning device body provided by the present application, the third angle is larger than or equal to 60°, but smaller than or equal to 80°.

[0037] As such, the displayers used for displaying an operating state of various functional parts of the cleaning device can have a good viewing angle for a user's eyes, which improves a user's viewing experience.

[0038] In a possible mode of realization, in the cleaning device body provided by the present application, the display assembly further comprises a circuit board;

the circuit board has a plurality of state lamps and a trigger part corresponding to the self-cleaning displayer, the state lamps corresponding respectively to the operating state displayer and the power level displayer.

[0039] As such, the trigger part can receive a touch signal transmitted from the self-cleaning displayer and

control the cleaning device body to perform self-cleaning. An operating state and a power level are displayed by means of the state lamps, providing people with an intuitive visual experience.

[0040] In a possible mode of realization, in the cleaning device body provided by the present application, the body front cover has a light transmission part arranged correspondingly to the display assembly.

[0041] As such, a visual effect of the display assembly is transmitted to a user by means of the light transmission part, which provides people with an intuitive visual experience on one hand, and protects the display assembly on the other hand.

[0042] In a possible mode of realization, in the cleaning device body provided by the present application, the body front cover has a avoiding hole arranged to correspond to the control assembly so as to avoid the control assembly.

[0043] As such, when a user operates the control assembly, the avoiding hole does not interfere with the user's operations.

[0044] In a possible mode of realization, in the cleaning device body provided by the present application, the holding part and the mounting part transition via a rounded corner, the self-cleaning displayer being located at the transition between the holding part and the mounting part;
the operating state displayer and the power displayer are located on the mounting part.

[0045] As such, since the holding part and the mounting part transition via a rounded corner, the cleaning device body has a rounded and smooth aspect, which improves aesthetics. With the self-cleaning displayer located at the transition between the holding part and the mounting part, and the operating state displayer and power level displayer located on the mounting part, the structure is rendered compact, and both display and operation are facilitated.

[0046] In a possible mode of realization, in the cleaning device body provided by the present application, the base comprises a base support, a breathing light, and a base front cover, the base front cover being arranged to cover the base support, the base support having a light slot, the breathing light being mounted in the light slot.

[0047] As such, the base has a light display function, which improves the base support's versatility. In addition, with the base front cover arranged to cover the base support, a removal connection between the base front cover and the base support is realized, facilitating replacement and repair.

[0048] In a possible mode of realization, in the cleaning device body provided by the present application, the base further comprises a shading sheet arranged between the breathing light and the base front cover, a projection of the shading sheet towards the light slot being located in the light slot.

[0049] Thus, it can be understood that, the shading sheet can change the shape presented by the breathing light, which helps improve versatility and personalization of the display of the breathing light.

[0050] In a possible mode of realization, in the cleaning device body provided by the present application, the base further comprises a sealing gasket arranged on the base support in a circumferential direction of the light slot.

[0051] As such, it can be understood that, when a water tank needs to be mounted correspondingly on the base support, or the base support is close to a floor or dirt, the sealing gasket can improve the sealing of the light slot and prevent water and dirt from entering into the base support.

[0052] In a second aspect, the present application provides a cleaning device comprising a main body and the above-described cleaning device body arranged on the main body.

[0053] In addition to the technical problems solved by the embodiments of the present application, the technical features that constitute the technical solutions, and the beneficial effects brought about by the technical features of these technical solutions that have been described above, other technical problems that can be solved by the technical solutions provided by the present application, other technical features included in the technical solutions, and the beneficial effects brought about by these technical features will be further described in detail in the "detailed description of the embodiments" section.

Description of the drawings

[0054] In order to more clearly illustrate the technical solutions of embodiments of the present application or the prior art, the drawings to be used in describing the embodiments or the prior art will be briefly introduced below. Obviously, the drawings described below are some embodiments of the present application. For those skilled in the art, other drawings can be obtained based on these drawings without any creative labor.

Fig. 1 is a partial, exploded schematic structural view of a body provided by an embodiment of the present application;

Fig. 2 is a partial, exploded schematic structural view of the holding part and the mounting part in Fig. 1;

Fig. 3 is a schematic view of a partial inner structure of the holding part and the mounting part in Fig. 1;

Fig. 4 is an enlarged schematic structural view of part A in Fig. 3;

Fig. 5 is an enlarged schematic structural view of part B in Fig. 3;

Fig. 6 is an enlarged schematic structural view of part C in Fig. 3;

Fig. 7 is a schematic structural view of a body provided by an embodiment of the present application;

Fig. 8 is an exploded schematic structural view of the base in Fig. 7;

Fig. 9 is a partial schematic structural view of a cleaning device provided by an embodiment of the present application.

list of reference numerals:

[0055]

100: body; 110: holding part; 120: mounting part; 121: electrical connection part; 130: base; 140: body front cover; 141: avoiding hole; 150: body support; 151: first mounting slot; 152: second mounting slot; 153: third mounting slot; 160: body rear cover;

200: control assembly;

300: display assembly; 310: operating state displayer; 320: power level displayer; 330: self-cleaning displayer; 340: circuit board;

400: base support; 500: breathing light; 600: base front cover; 700: shading sheet; 800: sealing gasket.

Detailed Description of the Embodiments

[0056] In order to make the objectives, technical solutions and advantages of the present application clearer, the technical solutions in the embodiments of the present application will be described in more detail below in conjunction with the accompanying drawings in preferred embodiments of the present application. Throughout the accompanying drawings, the same or similar reference numerals represent the same or similar parts or parts with the same or similar functions. The described embodiments are some of the embodiments of the present application, not all of the embodiments. The embodiments described below with reference to the accompanying drawings are exemplary and are intended to be used to interpret the present application, and should not be construed as limiting the present application.

[0057] Based on the embodiments in the present application, all other embodiments obtained by a person of ordinary skills in the art without creative labor are within the scope of protection of the present application. Embodiments of the present application are described in detail below in conjunction with the accompanying drawings.

[0058] It should be noted that in the description of the present application, unless otherwise clearly specified and limited, the terms "mounted," "connected," and "connect" should be understood in a broad sense. For example, it can be a fixed connection, or it can be an indirect connection through an intermediary, or it can be internal communication between two elements or an interaction relationship between two elements. For those skilled in the art, the specific meanings of the above terms in the present application can be understood according to specific circumstances.

[0059] It should also be noted that, in the description of the present application, the terms indicating an orientation or position relationship, such as "upper," "lower," "front," "back," "vertical," "horizontal," "top," "bottom," "inner," and "outside", are based on the orientation or position relationships shown in the drawings, and are only for the convenience of describing the present application and simplifying the description, instead of indicating or implying that the referred means or element must have a specific orientation, be constructed and operated in a specific orientation, and therefore cannot be understood as a limitation on the present application.

[0060] The terms "first," "second," and "third" (if any) in the specification, claims, and the above-described accompanying drawings of the present application are used for distinguishing between similar objects and are not necessarily used for describing a particular order or sequence. It should be understood that data thus used can be interchanged in appropriate circumstances so that the embodiments of the present application described herein can be realized in an order other than what is illustrated or described.

[0061] In addition, the terms "comprise" and "have" and any variations thereof are intended to cover a non-exclusive inclusion. For example, a process, method, system, product, or display comprising a series of steps or elements is not necessarily limited to those steps or elements explicitly listed, but may include other steps or elements not explicitly listed or inherent to such process, method, product, or display.

[0062] As stated in the background of the invention, a cleaning device will have multiple different operating states during operation. A user needs to get information such as the cleaning device's battery level, cleaning mode, cleaning liquid amount, and floor cleanness, so as to adjust the state of the cleaning device based on cleaning progress and better accomplish cleaning.

[0063] However, with existing cleaning devices, it's inconvenient to observe information on their operating state, thus resulting in poor user experience.

[0064] In view of the above-described problem, the present application provides a cleaning device body and a cleaning device. The cleaning device comprises a body, a control assembly, and a display assembly, wherein the display assembly comprises at least one displayer used for displaying the cleaning device body's operating state and located on the front side of the body. After the body is held, the displayer is located at the front side of the body, making it convenient for a user to timely, rapidly, and intuitively observe the cleaning device's state during cleaning and making it convenient to operate control so as to adjust the cleaning device's state.

[0065] Specific modes of realization of the cleaning device body and the cleaning device provided by embodiments of the present application are described in detail below in conjunction with the accompanying drawings.

[0066] It should be noted that, Figs. 1 to 9 shows simplified schematic views of various parts in a cleaning device body and a cleaning device, and specific structures of other parts in them are not limited to what is shown in Figs. 1 to 9 by way of example.

[0067] In reference to Figs. 1 and 2, the present application provides a cleaning device body comprising a body 100, a control assembly 200, and a display assembly 300.

[0068] The display assembly 300 comprises at least one displayer used for displaying the cleaning device body's operating state and located at the front side of the body 100.

[0069] It can be understood that, when using the cleaning device, a user needs to hold the body 100 so as to operate the cleaning device so that it forms a certain angle with a surface to be cleaned, for example, a right angle or a tilted angle, which facilitates cleaning. After the body 100 is held, both the control assembly 200 and the display assembly 300 face the user, making it convenient for the user to observe information on the operating state of the cleaning device during cleaning, and for the user to operate buttons to adjust the state of the cleaning equipment.

[0070] And it should be noted that, in Figs. 1 and 2, the X direction, Y direction, and Z direction shown are set such that any two of them are perpendicular to each other in a three dimensional space. When a user operates the body 100 to perform cleaning, the user is generally located at the inner side or rear side of the body 100, in other words, the side shown by the Y direction arrow of the body 100 in Fig. 1. Correspondingly, the direction opposite to the Y direction arrow of the body 100 in Fig. 1 is considered as the outer side or front side of the body 100.

[0071] In a possible mode of realization, still in reference to Fig. 1, the displayer is located at the front side of the body 100, which facilitates observation by a user.

[0072] In addition, optionally, still in reference to Fig. 1, the control assembly can be located at the front side of the body 100 together with the displayer, so as to facilitate operation of the control assembly by a user at the same time of observation, or, the control assembly can be arranged at the rear side of the body 100. No specific limitation is made here provided that a user is allowed to operate the control assembly.

[0073] In a possible mode of realization, the displayer is arranged to tilt towards the lower side of the body 100. Specifically, in reference to Fig. 2, the direction opposite to the Z direction arrow in Fig. 2 is the lower side of the body 100. Thus, regardless of whether the body 100 is in an upright state or a tilted state during use, the displayer always forms a certain angle with the body 100. It can be understood that, generally, the cleaning device is lower than a user, and when a user faces the cleaning device, the user's line of sight will be directed downward at an angle. The tilting angle of the displayer relative to the body 100 can allow the displayer to tilt towards the user's line of sight, making it possible for the user to more clearly observe the displayer.

[0074] Optionally, the display assembly 300 comprises at least two displayers. The different displayers are arranged sequentially in a spaced apart manner in an extension direction of the body 100, with the same tilting direction and titling angle.

[0075] In a specific implementation, still in reference to Figs. 1 and 2, the different displayers are located at the front side of the body 100, and when the lower part of the body 100 is arranged vertically, i.e., when the part of the body 100 close to the direction opposite to the Z direction arrow in Fig. 1 is parallel with the Z direction, the different displayers are located at the front side of the body 100 and arranged in a spaced apart manner or in an evenly spaced apart manner in the Z direction.

[0076] Alternatively, in another mode of realization, the different displayers can be arranged in the X direction arrow in Fig. 1 at the front side of the body 100.

[0077] Thus, at least two displayers can display more operating states of the cleaning device, which allows a user to observe and sense more information on the operating states. In addition, with the displayers arranged sequentially in a spaced apart manner in an extension direction of the body 100, obstruction by one another of the displayers can be avoided, facilitating observation.

[0078] In a possible mode of realization, the control assembly 200 comprises at least one of a switch controller and a cleaning mode controller.

[0079] As such, with at least one of a switch controller and a cleaning mode controller arranged at a side of the body 100, it makes it easy for a user to conveniently and rapidly control the switching of the cleaning device or switch the cleaning mode of the cleaning device while holding the body 100, which increases operation efficiency. The switch controller can control whether the cleaning device operates, and the cleaning mode controller can be designed to switch between modes corresponding to different strengths of a suction force, such as strong, medium, and soft, based on needs, which are not limited here.

[0080] It should be noted that, the switch controller and the cleaning mode controller are one of a button, a knob, a dial, a push button, and a tactile controller; or, the switch controller is one of a button, a knob, a dial, a push button, and a tactile controller, and the cleaning mode controller is another one of a button, a knob, a dial, a push button, and a tactile controller. The specific implementation forms of the switch controller and the cleaning mode controller are not specifically limited here.

[0081] In a possible mode of realization, the control assembly 200 and the displayers are located at the same side of the body100. The control assembly 200 and the displayers both face a user when the body 100 is being

held.

[0082] As such, with the control assembly 200 and the displayer located at the same side of the body 100, it can be understood that, after a user has observed the cleaning device's operating state, when the operating state needs to be adjusted, he/she can accomplish the adjustment by directly operating the control assembly 200 while being able to observe the control assembly 200 and the displayers at the same time. While the control assembly 200 is being operated, the displayers report the cleaning device's operating state, making it faster and more convenient.

[0083] In a possible mode of realization, the body 100 comprises a holding part 110 and a mounting part 120 that are sequentially arranged from top to bottom. The display assembly 300 is at least partially located at the mounting part 120. The control assembly 200 is located at the holding part 110, and adjacent to the display assembly 300.

[0084] As such, the control assembly 200 and the display assembly 300 are of a compact structure, which facilitates operation and observation by a user. With the control assembly 200 partially located on the holding part 110, it is convenient for a user to operate the control assembly 200 while holding the body 100.

[0085] In a possible mode of realization, the body 100 further comprises a base 130. An end of the mounting part 120 opposite to the holding part 110 has an electrical connection part 121 configured to be connected with the base 130 by insertion. Or, it can be understood that, in a mode of realization, the electrical connection part 121 is a male mating connector, the base 130 has a female mating connector, and it is sufficient so long as the male mating connector is connected with the female mating connector by insertion.

[0086] It should be noted that, the electrical connecting part 121 here is a relevant technology in the art, and need only accomplish connection to the base 130 by insertion and transmission of an electrical signal with the base 130, without any limitation here on its specific structure. A rapid connection between the body 100 and the base 130 is achieved, which facilitates repair and replacement of the body 100 and at the same time facilitates modular storage or transportation of the cleaning device.

[0087] In a possible mode of realization, there is a first angle between the holding part 110 and the mounting part 120. When the cleaning device body is in an upright state, the mounting part 120 is arranged vertically, and the holding part 110 tilts towards a user.

[0088] In reference to Fig. 3, when the cleaning device body is in an upright state, the mounting part 120 is arranged vertically, and the holding part 110 tilts towards a user. The direction indicated by the X arrow in Fig. 3 is the length direction of the mounting part 120. The direction indicated by the Y arrow in Fig. 3 is the length direction of the holding part 110. The angle f between X and Y is the first angle.

[0089] In a possible mode of realization, f is larger than or equal to 120°, but smaller than or equal to 140°.

[0090] As such, with the holding part 110 tilting towards a user, holding by the user can be facilitated, resulting in an ergonomic configuration and more comfort when being used by the user.

[0091] While ensuring aesthetics, the user can tilt the holding part 110 slightly to form a more comfortable angle with the user, making it easier for the user to operate and improving the user experience.

[0092] In a possible mode of realization, the body 100 comprises a body front cover 140, a body support 150, and a body rear cover 160. The body front cover 140 is arranged to cover the body rear cover 160 and form a receiving chamber together with the body rear cover 160. The body support 150 is located in the receiving chamber.

[0093] Specifically, the body support 150 is bolted to the body rear cover 160, the body front cover 140 is a semi-transmitting element, the body support 150 has a plurality of snap-fit tips, the body front cover 140 has a plurality of snap-fit rings at a side facing the body support 150, and the snap-fit tips and the snap-fit rings are correspondingly snap-fitted. As such, by arranging separately the body front cover 140 and the body rear cover 160, on one hand, mounting of the body support 150 is facilitated, and on other hand, replacement and repair of any one of the body front cover 140, body support 150, and body rear cover 160 is facilitated.

[0094] In a possible mode of realization, the displayers can be of a regular shape such as a circle, a square, an oval, a trapezoid, or a polygonal, or any irregular shape, which is not specifically listed here. The body support 150 has a plurality of first mounting slots 151 arranged in a spaced apart manner in an extension direction of the body support 150. The displayers are correspondingly arranged in the first mounting slots 151.

[0095] In a specific implementation, in reference to Figs. 1 and 2, the plurality of first mounting slots 151 are arranged sequentially in a spaced apart manner in the Z direction in Fig. 1 or Fig. 2.

[0096] The at least one displayer comprises an operating state displayer 310 and a power level displayer 320. A displayer located at an end among the displayers is the power level displayer 320 and used for displaying a power level number. The remaining displayers are the operating state displayer 310 and used for displaying an operating state of various functional parts of the cleaning device.

[0097] As shown in Fig. 2, the power level displayer 320 is designed as four side-by-side numeral shapes in the form of 1881 having an effect of bidirectional display. For example, when the cleaning device is being charged, a user will face the cleaning device to observe it. When the cleaning device is being used, a user will look towards the cleaning device. A number can always be displayed from left to right relative to the direction of people, which conforms to people's observation habits.

[0098] As such, by using displayers to display graphics or icons of power level and operating states, users can

easily perceive the power level and changes in the device's state intuitively, and the first mounting slots 151 provide mounting positions for the displayers. In addition, since the displayers are arranged sequentially in a spaced apart manner in an extension direction of the body support 150, mutual obstruction between the displayers can be avoided and observation is facilitated.

[0099] In a possible mode of realization, operating state parameters can be information on cleanness, information on water amount, information on dirtiness of dirty liquid in a recovery passage of the cleaning device, information on network connection, information on whether the speaker is on or off, etc., any one of which or all of which can be displayed. It's not limited here.

[0100] In a possible mode of realization, the body support 150 has a second mounting slot 152 and a third mounting slot 153.

[0101] The second mounting slot 152 is located between the first mounting slots 151 and the third mounting slot 153. The at least one displayer comprises the self-cleaning displayer 330, which is arranged in the second mounting slot 152. The control assembly 200 is arranged in the third mounting slot 153.

[0102] As such, the second mounting slot 152 and the third mounting slot 153 provide a mounting and supporting position respectively for the self-cleaning displayer 330 and the control assembly 200. With the self-cleaning displayer 330 arranged in the second mounting slot 152, it is close to the control assembly 200, which facilitates a user's operation of the self-cleaning displayer 330 while operating the control assembly 200.

[0103] It should be noted that the self-cleaning displayer 330 is a relevant technology in the art. When the self-cleaning displayer 330 is operated, the cleaning device body starts self-cleaning to achieve automatic discharge of water and dirt in the cleaning device. The operating state displayers 310 can display for example information on operating state parameter and/or cleanness of a surface to be cleaned.

[0104] In a possible mode of realization, a displayer close to the control assembly 200 is used for displaying a power level number. The displayerforms a second angle with a horizontal plane when the cleaning device body is in an upright state.

[0105] As such, when operating the control assembly 200, a user can quickly observe the power level, which makes it convenient for the user to take an action to switch the cleaning device body's operating state or to charge the cleaning device body.

[0106] In addition, as shown in Fig. 4, with the displayer used for displaying a power level number forming a second angle with a horizontal plane when the cleaning device body is in an upright state, observation by a user is facilitated. The second angle is noted j in Fig. 4.

[0107] In a possible mode of realization, j is larger than or equal to 60°, but smaller than or equal to 80°.

[0108] Thus, the displayer used for displaying a power level number can have a good viewing angle for a user's eyes, which is ergonomic and improves a user's viewing experience.

[0109] In a possible mode of realization, each displayer used for displaying an operating state of various functional parts of the cleaning device forms a third angle with a horizontal plane. As shown in Fig. 5, the third angle is noted k in Fig. 5.

[0110] In a possible mode of realization, k is larger than or equal to 60°, but smaller than or equal to 80°.

[0111] As such, observation by a user is further facilitated, and the operating state of various functional parts of the cleaning device is determined rapidly and intuitively. Thus, the displayers used for displaying the operating state of various functional parts of the cleaning device can have a good viewing angle for a user's eyes, which further improves a user's viewing experience.

[0112] In a possible mode of realization, the operating state displayer 310, the power level displayer 320, and the self-cleaning displayer 330 are all patches. Correspondingly, the operating state displayer 310 is a state patch to be sticked into the first mounting slot 151. The power level displayer 320 is a power level patch, which is also sticked at a corresponding position in the first mounting slot 151. The self-cleaning displayer 330 is a self-cleaning patch sticked into the second mounting slot 152. The above-described patches are a relevant technology in the art. Their specific effects are not unduly limited here.

[0113] In a possible mode of realization, the self-cleaning displayer 330 is also a touch control and has a corresponding sensing function. For example, when a finger touches the self-cleaning displayer 330, it is triggered and senses an associated control system, thus controlling the cleaning device to start self-cleaning, which facilitates operation by a user. There is a fourth angle between the self-cleaning displayer 330 and a horizontal plane. As shown in Fig. 6, the fourth angle is noted as i in Fig. 6, which is larger than or equal to 60° but smaller than or equal to 80°.

[0114] In a possible mode of realization, the display assembly 300 further comprises a circuit board 340.

[0115] The circuit board 340 has a plurality of state lamps and trigger parts corresponding to the self-cleaning displayer 330.The various state lamps correspond respectively to the operating state displayer 310 and the power level displayer 320.

[0116] The state lamps can display icons of various operating states. The circuit board 340 is arranged in the body support 150.

[0117] As such, the trigger parts can receive a touch signal transmitted from the self-cleaning displayer 330 and controls the cleaning device body to perform self-cleaning. By using the state lamps to display operating states and power level, an intuitive visual experience is provided to people visually.

[0118] In a possible mode of realization, to further facilitate observation by a user, the body front cover 140 has a light transmission part arranged correspond-

ingly to the display assembly 300. A visual effect of the display assembly 300 is transmitted to a user via the light transmission part. On one hand, an intuitive visual experience is provided to people. On the other, the light transmission part protects the display assembly 300.

[0119] In a possible mode of realization, the body front cover 140 has a avoiding hole 141 arranged to correspond to the control assembly 200 so as to avoid the control assembly 200. As such, when a user operates the control assembly 200, the avoiding hole 141 does not interfere with the user's operations.

[0120] In a possible mode of realization, the holding part 110 and the mounting part 120 transition via a rounded corner. The self-cleaning displayer 330 is located at the transition between the holding part 110 and the mounting part 120.

[0121] The operating state displayer 310 and the power level displayer 320 are located on the mounting part 120.

[0122] As such, since the holding part 110 and the mounting part 120 transition via a rounded corner, the cleaning device body has a rounded and smooth aspect, which improves aesthetics. With the self-cleaning displayer 330 located at the transition between the holding part 110 and the mounting part 120, and the operating state displayer 310 and the power level displayer 320 located on the mounting part 120, the structure is rendered compact, and display is facilitated while facilitating operation by a user.

[0123] In reference to Figs. 7 to 9, in a possible mode of realization, the base 130 comprises a base support 400, a breathing light 500, and a base front cover 600. The base front cover 600 is arranged to cover the base support 400 and is a semi-transparent element. The base support 400 has a light slot, in which the breathing light 500 is mounted. The base support 400 has a light display function, which improves the base support 400's versatility.

[0124] In a possible mode of realization, the base 130 further comprises a shading sheet 700 arranged between the breathing light 500 and the base front cover 600. A projection of the shading sheet 700 towards the light slot is located in the light slot.

[0125] It can be understood that the shading sheet 700 can change the shape presented by the breathing light 500, which helps improve the versatility and personalization of the display of the breathing light 500. The shading sheet 700 can be in the shape of a heart, a star, a circle, a square, etc. An O shape is shown in the drawings. No limitation is made here.

[0126] In a possible mode of realization, the base 130 further comprises a sealing gasket 800 arranged on the base support 400 in a circumferential direction of the light slot. As such, it can be understood that, when a water tank needs to be mounted correspondingly on the base support 400, or the base support 400 is close to a floor or dirt, the sealing gasket 800 can improve the sealing of the light slot and prevent water and dirt from entering into the base support 400.

[0127] The present application provides a cleaning device comprising a main body and an above-described cleaning device body arranged on the main body. The main body provided with the above-described cleaning device body has a good display effect both during cleaning and charging, which makes it convenient for a user to rapidly obtain information on the cleaning device's state and power level, improving user experience.

[0128] With the cleaning device body and cleaning device provided by embodiments of the present application, wherein the cleaning device body comprises a body 100, a control assembly 200, and a display assembly 300 used for displaying the cleaning device body's state, and the control assembly 300 and the display assembly 300 are located on the same surface of the body 100, when the body 100 is being held, the control assembly 200 and the display assembly 300 both face a user and can rapidly and intuitively present information on the surface cleaning device's operating state.

[0129] Finally, it should be noted that, the various embodiments above are merely used to describe the technical solutions of the present application, instead of limiting them. Although the present application has been described in detail with reference to the above-described embodiments, a person of ordinary skill in the art should understand that it is still possible to modify the technical solutions described in the above-described embodiments, or to make equivalent replacements for some or all of the technical features therein; and these modifications or replacements do not cause the essence of the corresponding technical solutions to deviate from the scope of the technical solutions of the embodiments of the present application.

Claims

1. A cleaning device body **characterized in that** it comprises a body (100), a control assembly (200), and a display assembly (300); and
in that the display assembly (300) comprises at least one displayer used for displaying the cleaning device body's operating state and located at a front side of the body (100).

2. The cleaning device body of claim 1, wherein the displayer is arranged to tilt towards a lower side of the body (100).

3. The cleaning device body of claim 2, wherein the display assembly (300) comprises at least two displayers which are arranged sequentially in a spaced apart manner in an extension direction of the body (100) and tilt in a same direction at a same angle.

4. The cleaning device body of any one of preceding claims, wherein the control assembly (200) com-

prises at least one of a switch controller and a cleaning mode controller.

5. The cleaning device body of any one of preceding claims, wherein the control assembly (200) and the displayer are located at the same side of the body (100), the control assembly (200) and the display assembly (300) both facing a user when the body (100) is being held.

6. The cleaning device body of any one of preceding claims, wherein the body (100) comprises a holding part (110) and a mounting part (120) that are sequentially arranged from top to bottom, the display assembly (300) being at least partially located on the mounting part (120), the control assembly (200) being located on the holding part (110), and the control assembly (200) and the display assembly (300) being adjacent to each other.

7. The cleaning device body of claim 6, wherein the body (100) further comprises a base (130), an end of the mounting part (120) opposite to the holding part (110) having an electrical connection part (121) inserted to the base (130).

8. The cleaning device body of claim 6 or 7, wherein there is a first angle between the holding part (110) and the mounting part (120), preferably larger than or equal to 120°, but smaller than or equal to 140°; and in that when the cleaning device body is in an upright state, the mounting part (120) is arranged vertically, and the holding part (110) tilts towards a user located at a rear side of the body (100).

9. The cleaning device body of any one of claims 6 to 8, wherein the body (100) comprises a body front cover (140), a body support (150), and a body rear cover (160), the body front cover (140) being arranged to cover the body rear cover (160) and form a receiving chamber together with the body rear cover (160), the body support (150) being located in the receiving chamber.

10. The cleaning device body of claim 9, wherein the body support (150) has a plurality of first mounting slots (151) that are arranged sequentially in a spaced apart manner in an extension direction of the body support (150), the displayer being arranged in the first mounting slots (151) correspondingly; and
in that the at least one displayer comprises an operating state displayer (310) and a power level displayer (320), a displayer located at an end among the displayers being the power level displayer (32) and used for displaying a power level number, a remaining displayer being the operating state displayer (310) and used for displaying an operating state of various functional parts of the cleaning device.

11. The cleaning device body of claim 10, wherein the body support (150) has a second mounting slot (152) and a third mounting slot (153); and
in that the second mounting slot (152) is located between the first mounting slot (151) and the third mounting slot (153), at least one of the displayers comprising a self-cleaning displayer (330) arranged in the second mounting slot (152), the control assembly (200) being arranged in the third mounting slot (153).

12. The cleaning device body of any one of preceding claims, wherein a displayer close to the control assembly (200) is used for displaying a power level number and forms a second angle with a horizontal plane when the cleaning device body is in an upright state, the second angle being preferably larger than or equal to 60°, but smaller than or equal to 80°.

13. The cleaning device body of any one of preceding claims, wherein when the cleaning device body is in an upright state, each displayer used for displaying an operating state of various functional parts of the cleaning device forms a third angle with a horizontal plane, preferably larger than or equal to 60°, but smaller than or equal to 80°.

14. The cleaning device body of claim 11, wherein the holding part (110) and the mounting part (120) transition via a rounded corner, the self-cleaning displayer (330) being located at a transition between the holding part (110) and the mounting part (120); and
in that the operating state displayer (310) and the power level displayer (320) are located on the mounting part (120).

15. A cleaning device **characterized in that** it comprises a main body and the cleaning device body of any one of preceding claims arranged on the main body.

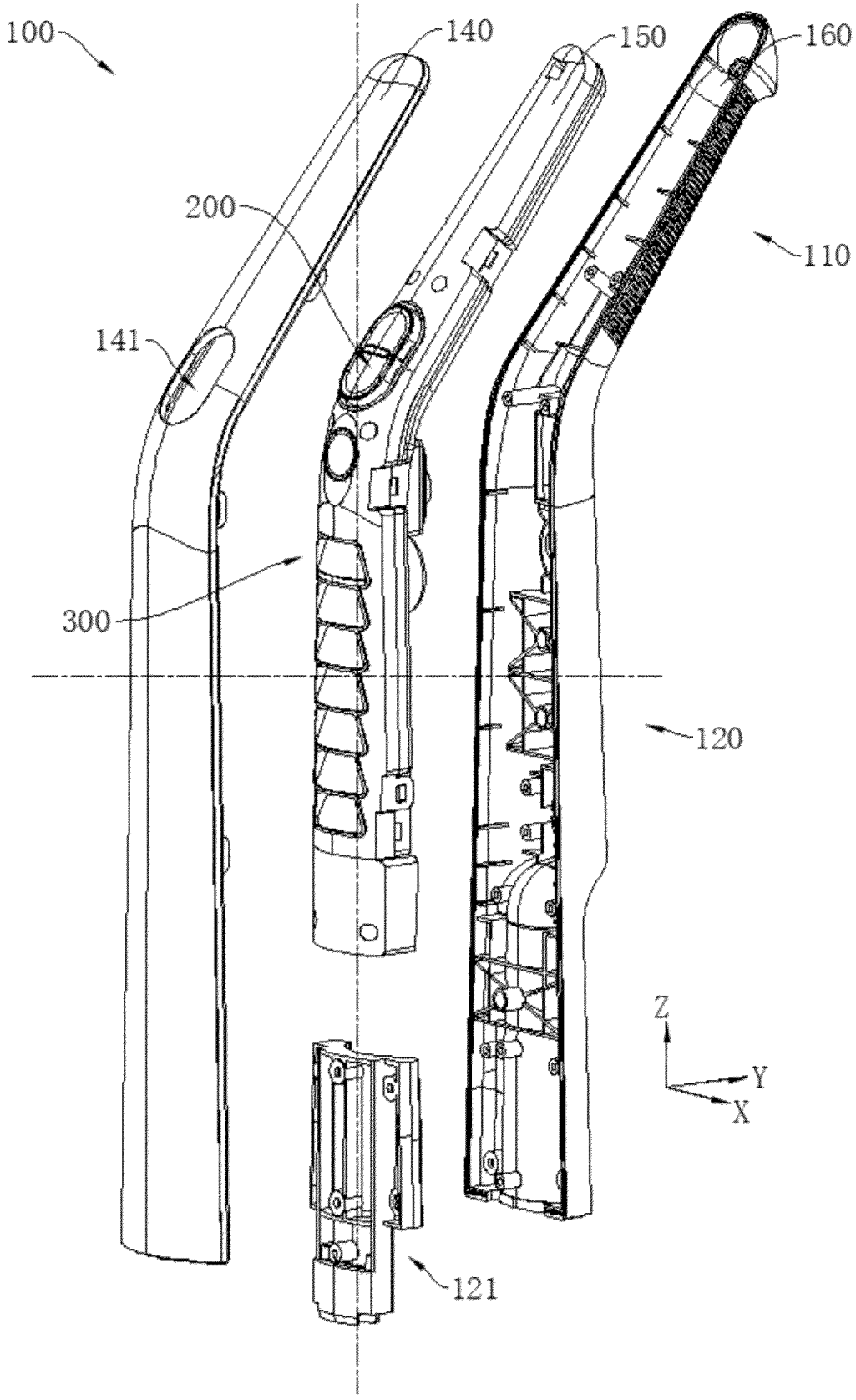

FIG. 1

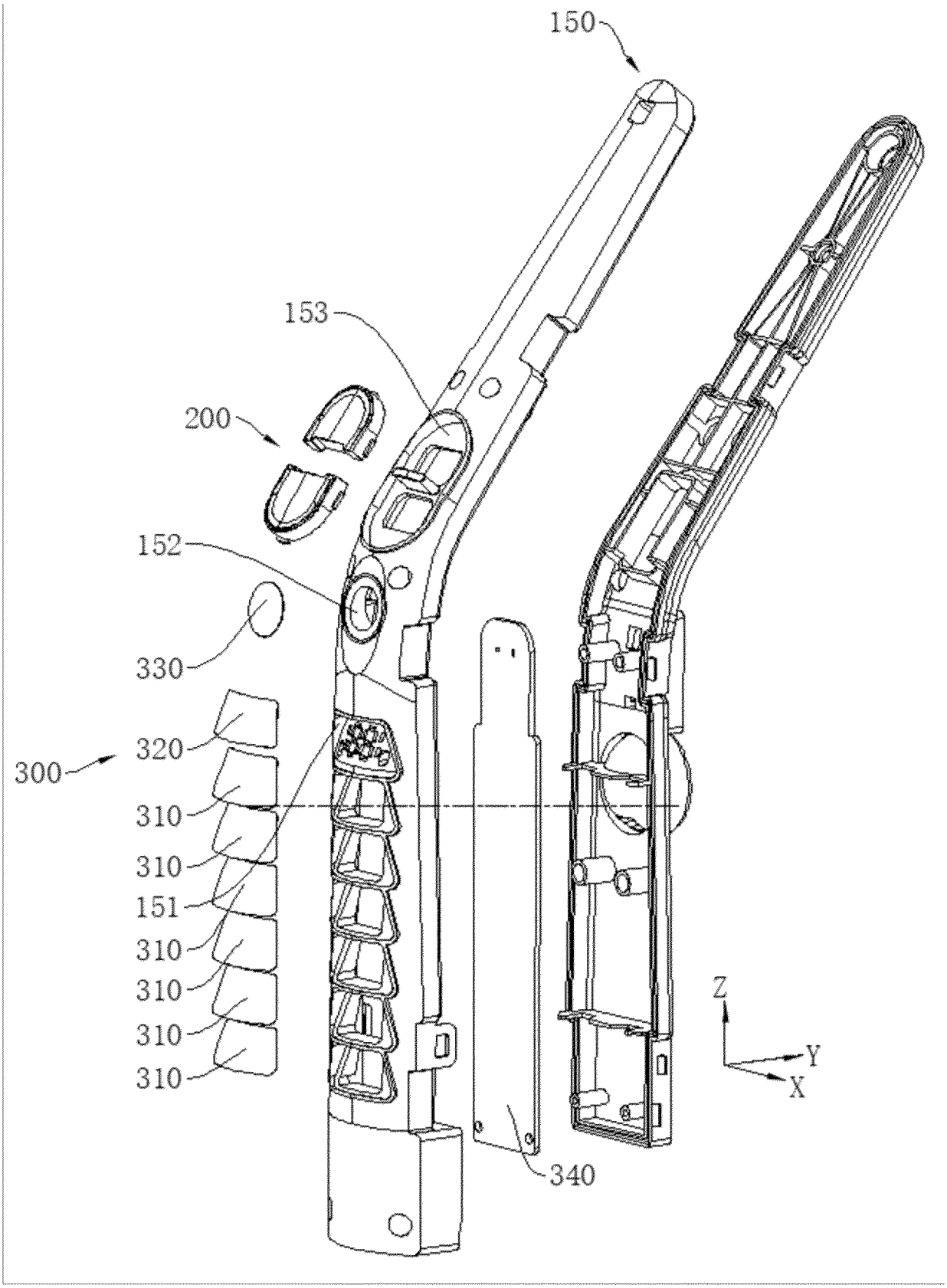

FIG. 2

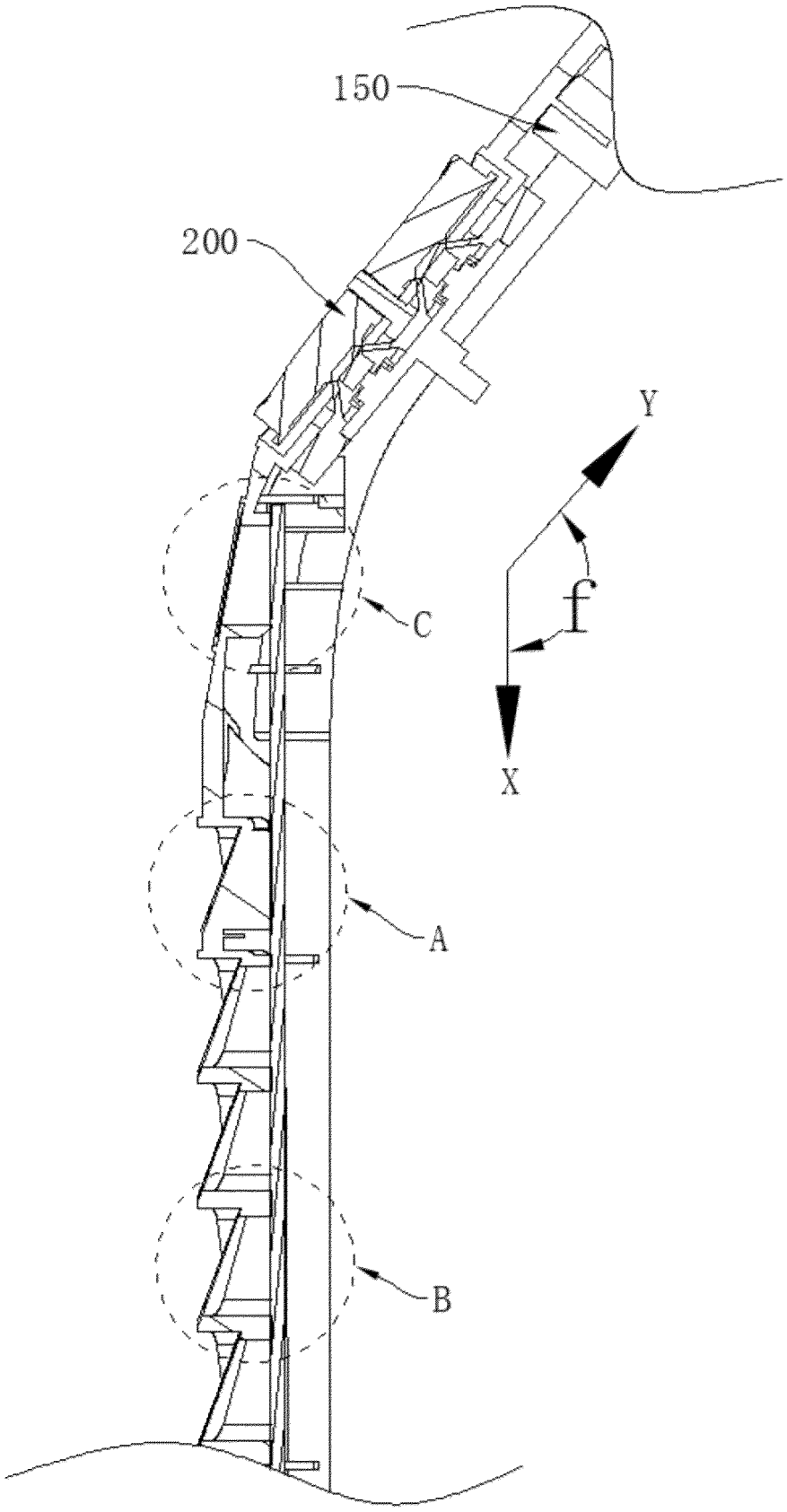

FIG. 3

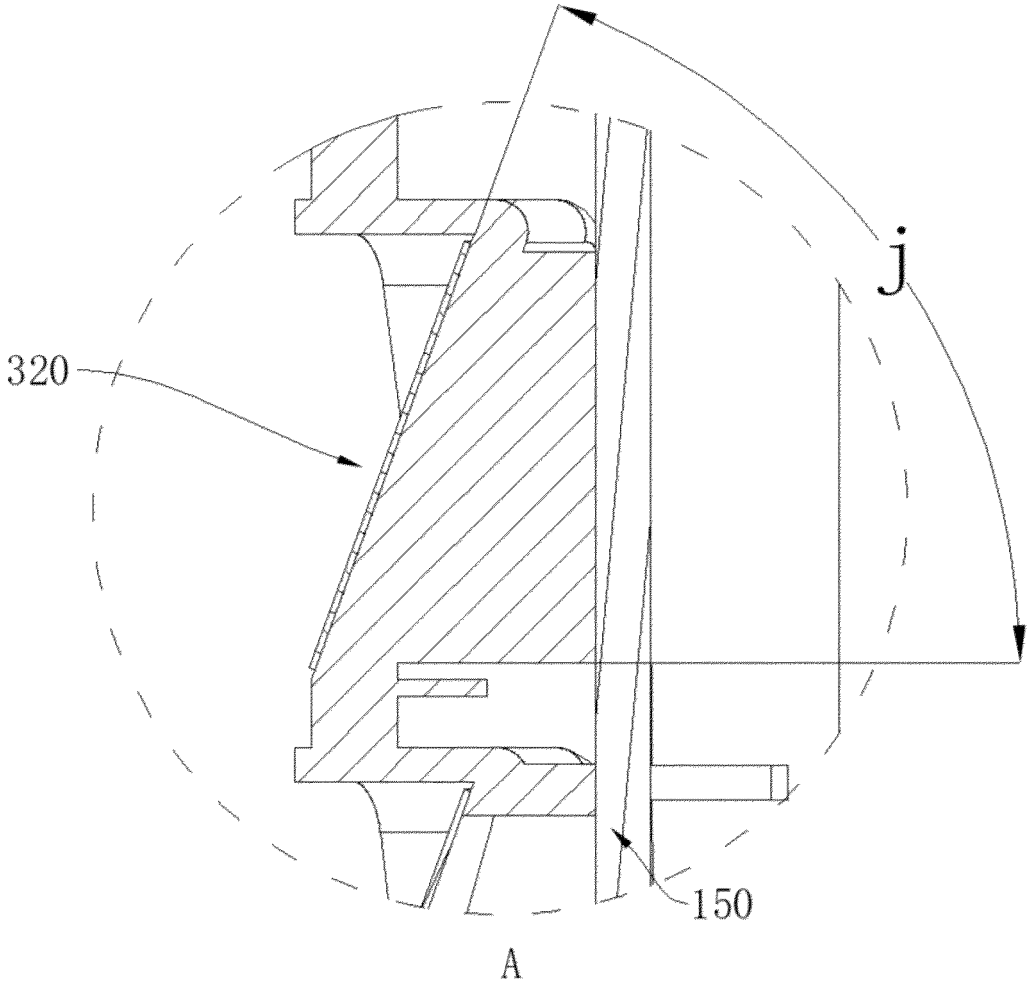

FIG. 4

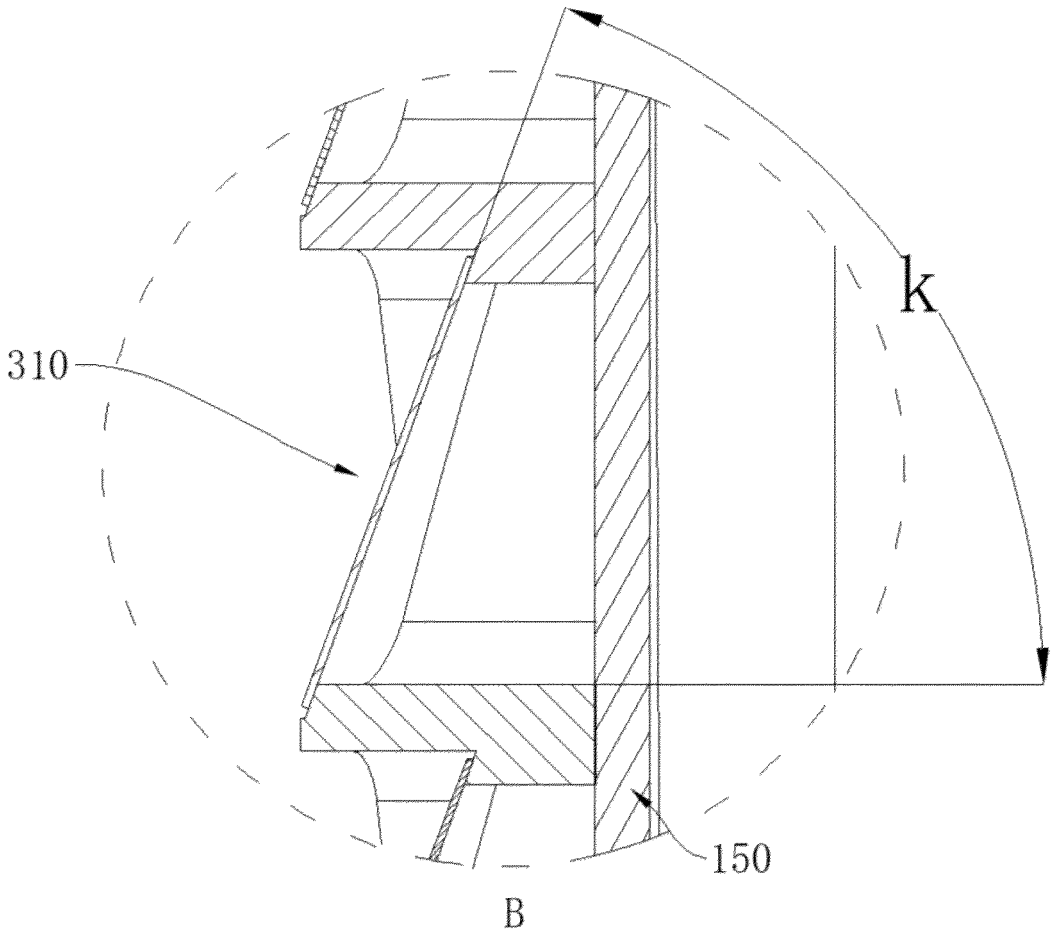

FIG. 5

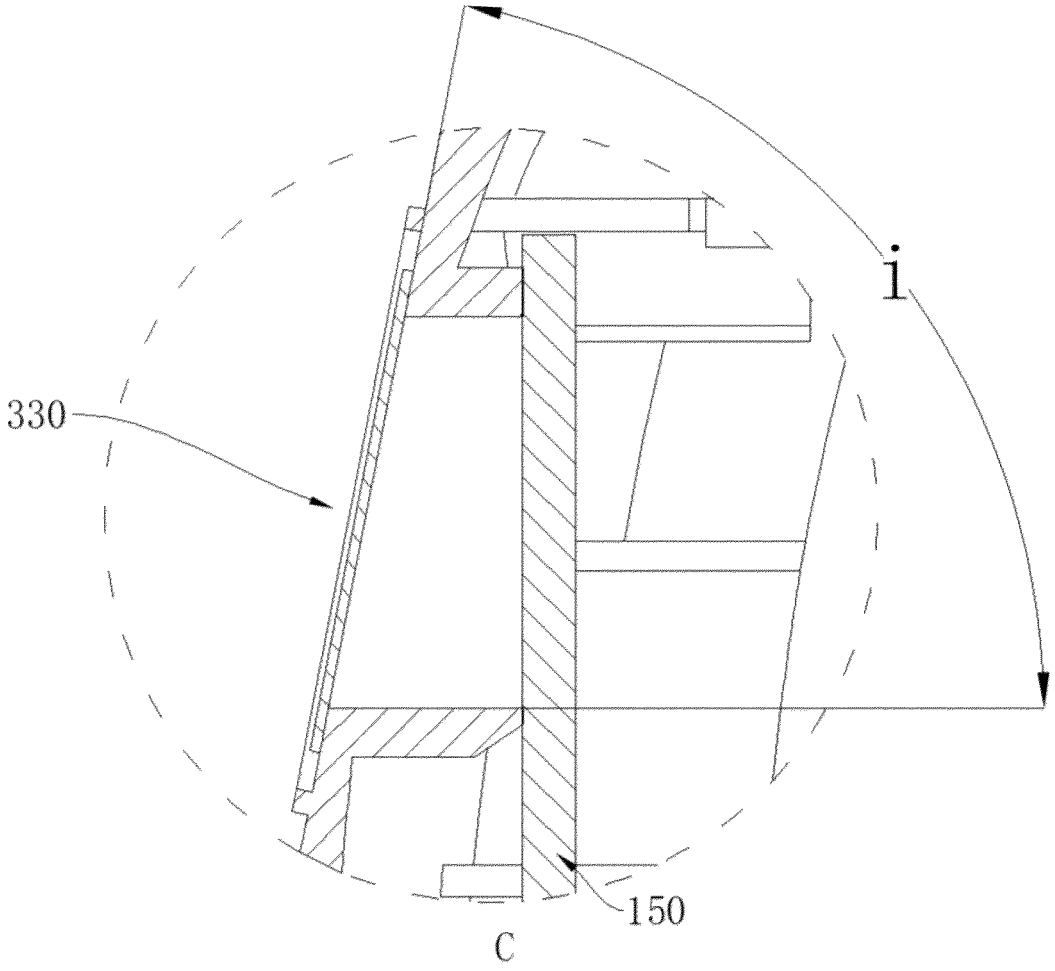

FIG. 6

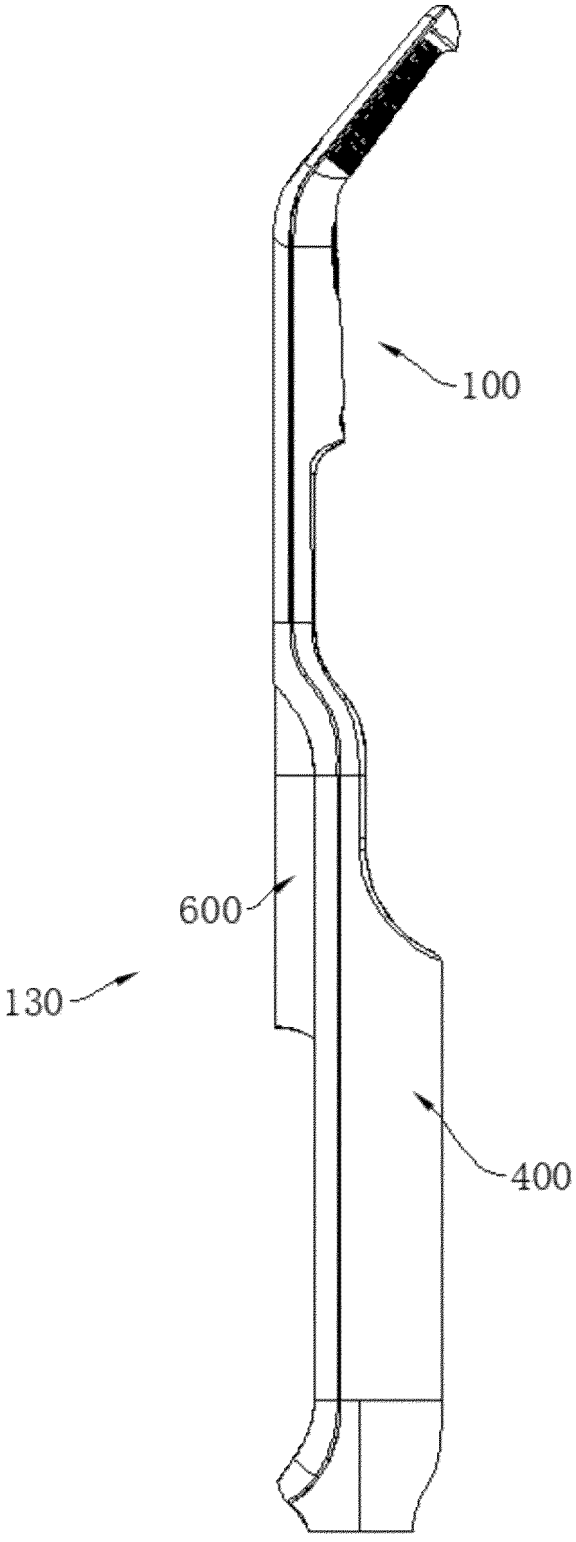

FIG. 7

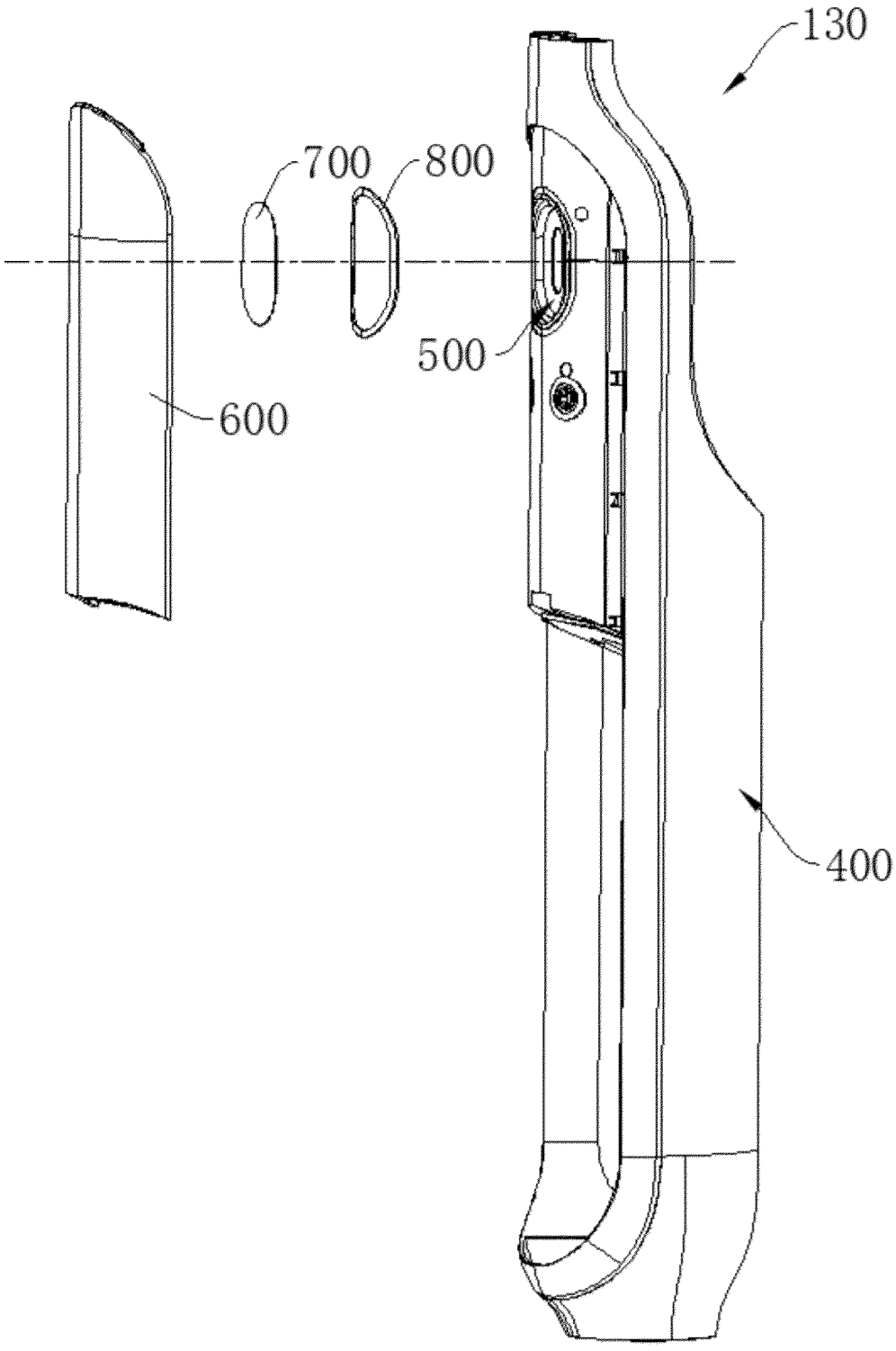

FIG. 8

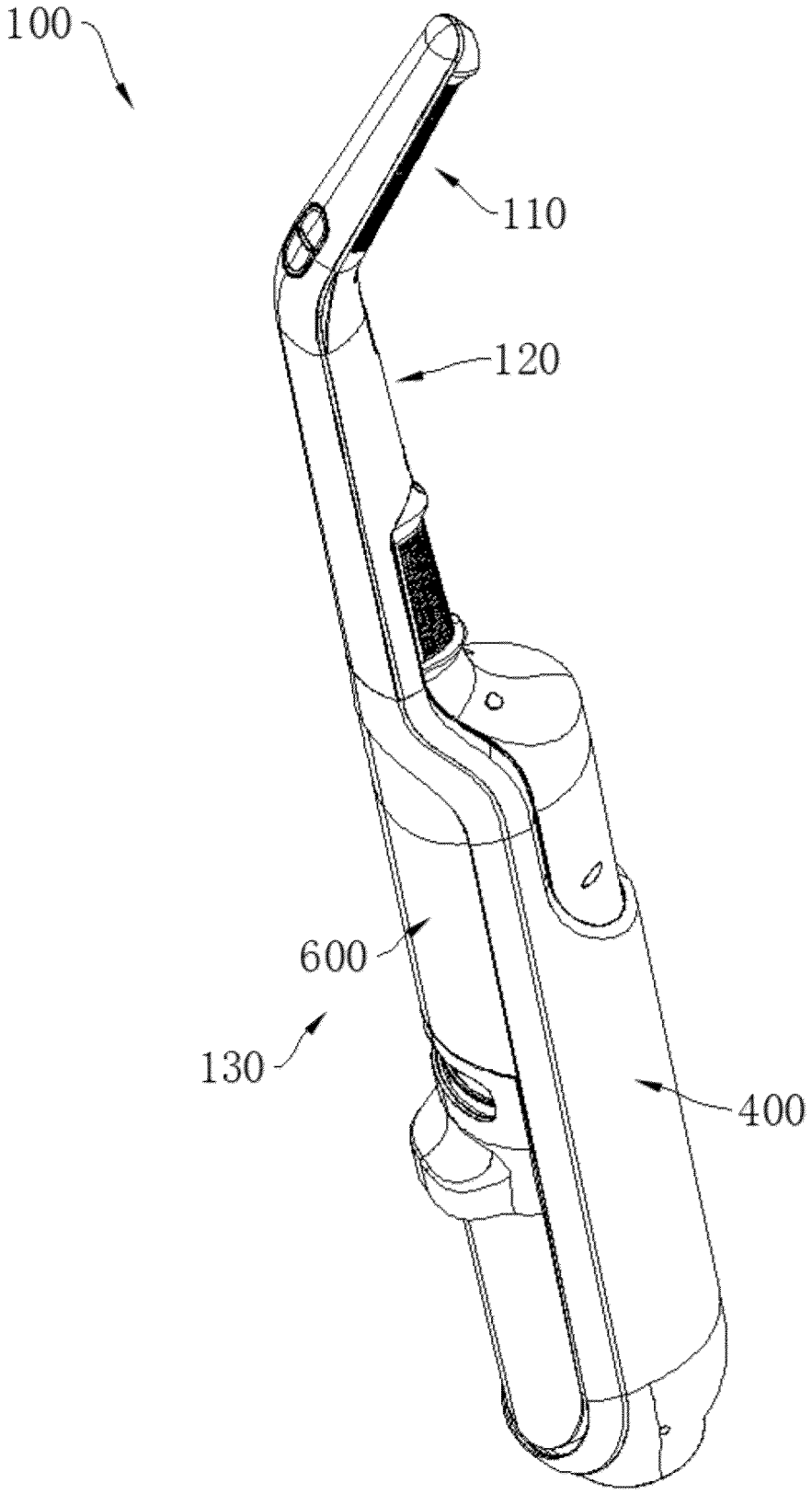

FIG. 9

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EUROPEAN SEARCH REPORT

Application Number
EP 24 19 6558

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A	* paragraph [0024] - paragraph [0026]; figure 1 *	2,3, 10-14	A47L9/30 A47L9/32
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A	* column 5, line 12 - column 6, line 19; figures 1,2 *	2,3,6-14	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	27 January 2025	Masset, Markus

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

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