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(71) Applicant: **LG Electronics Inc.**  
**Yeongdeungpo-gu**  
**Seoul 07336 (KR)**

(72) Inventors:

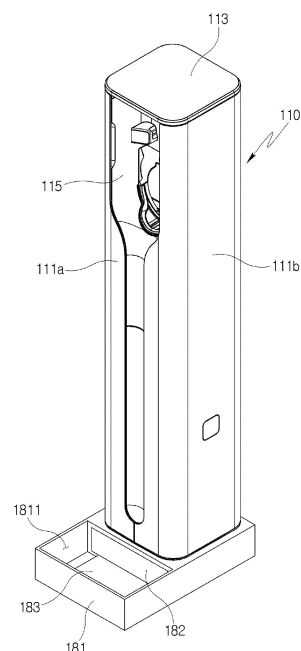
- **LEE, Donggeun**  
**Seoul 08592 (KR)**
- **JEONG, Yeonghan**  
**Seoul 08592 (KR)**
- **HONG, Jeongsoon**  
**Seoul 08592 (KR)**

(74) Representative: **Vossius & Partner**  
**Patentanwälte Rechtsanwälte mbB**  
**Siebertstrasse 3**  
**81675 München (DE)**

(54) **CLEANER STATION**

(57) The present disclosure relates to a cleaner station including an accessory storage part capable of hygienically storing an accessory of a cleaner or an accessory of the cleaner station, and a cleaner station according to an embodiment of the present disclosure may include a station housing configured to be coupled to the cleaner, a dust collecting motor accommodated in the station housing and configured to generate a suction force for sucking the dust in a dust bin of a cleaner, and an accessory storage part coupled to a lower end of the station housing and having a storage space for storing an accessory of the cleaner or an accessory of the cleaner station, in which the accessory storage part accommodates at least a part of the cleaner in a state in which the cleaner is coupled to the station housing.

[FIG. 5]



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**Description****[Technical Field]**

**[0001]** The present disclosure relates to a cleaner station configured to draw dust, which is stored in a cleaner, into the cleaner station. More specifically, the present disclosure relates to a cleaner station including an accessory storage part capable of hygienically storing a cleaner or accessories of the cleaner station. More specifically, the present disclosure relates to a cleaner station including an accessory storage part capable of hygienically storing a cleaner or accessories of the cleaner station.

**[Background Art]**

**[0002]** In general, a cleaner refers to an electrical appliance that draws in small garbage or dust by sucking air by using electricity and fills a dust bin provided in a product with the garbage or dust. Such a cleaner is generally called a vacuum cleaner.

**[0003]** The cleaners may be classified into a manual cleaner which is moved directly by a user to perform a cleaning operation, and an automatic cleaner which performs a cleaning operation while autonomously traveling. Depending on the shape of the cleaner, the manual cleaners may be classified into a canister cleaner, an upright cleaner, a handy cleaner, a stick cleaner, and the like.

**[0004]** The canister cleaners were widely used in the past as household cleaners. However, recently, there is an increasing tendency to use the handy cleaner and the stick cleaner in which a dust bin and a cleaner main body are integrally provided to improve convenience of use.

**[0005]** In the case of the canister cleaner, a main body and a suction port are connected by a rubber hose or pipe, and in some instances, the canister cleaner may be used in a state in which a brush is fitted into the suction port.

**[0006]** The handy cleaner has maximized portability and is light in weight. However, because the handy cleaner has a short length, there may be a limitation to a cleaning region. Therefore, the handy cleaner is used to clean a local place such as a desk, a sofa, or an interior of a vehicle.

**[0007]** A user may use the stick cleaner while standing and thus may perform a cleaning operation without bending his/her waist. Therefore, the stick cleaner is advantageous for the user to clean a wide region while moving in the region. The handy cleaner may be used to clean a narrow space, whereas the stick cleaner may be used to clean a wide space and also used to a high place that the user's hand cannot reach. Recently, modularized stick cleaners are provided, such that types of cleaners are actively changed and used to clean various places.

**[0008]** However, because the stick cleaner has a dust bin with a small capacity for storing collected dust, which

inconveniences the user because the user needs to empty the dust bin frequently.

**[0009]** In this regard, Korean Patent Application Laid-Open No. 10-2021-0002057 discloses a cleaning apparatus including a vacuum cleaner and a docking station.

**[0010]** The docking station disclosed in Korean Patent Application Laid-Open No. 10-2021-0002057 includes a docking unit connected to a dust collecting container to remove foreign substances collected in the dust collecting container, and a suction device configured to suck foreign substances and inside air in the dust collecting container docked to the docking unit. The docking unit includes a docking opening opened in a second direction different from a first direction so that at least a part of the dust collecting container is inserted into the docking opening. In addition, the docking station includes a dust bag configured to collect foreign substances.

**[0011]** Meanwhile, some of accessories of the cleaning apparatus and accessories of the vacuum cleaner may need to be replaced. For example, the vacuum cleaner may be equipped with a plurality of suction nozzles depending on the use thereof and replaced depending on the purpose of the cleaning. Alternatively, for example, the dust bag coupled to the cleaning apparatus is an accessory that needs to be replaced periodically. That is, a user typically purchases a plurality of dust bags and replaces the dust bag with a new dust bag when foreign substances are collected in the dust bag at a predetermined level or higher. Alternatively, for example, a filter coupled to the vacuum cleaner or the cleaning apparatus needs to be washed periodically, and a new filter may be coupled to the vacuum cleaner or the cleaning apparatus and used while the washed filter is dried.

**[0012]** In this case, the user needs to separately store the accessory (the separated suction nozzle, a new dust bag, the washed filter, or the like) that is not currently used. For this reason, there is a problem in that a storage space is required, and there is a high concern that the accessory is lost.

**[Disclosure]****[Technical Problem]**

**[0013]** An object of the present disclosure is to provide a cleaner station that provides a function of drawing in dust in a dust bin of a cleaner, a function of mounting the cleaner, and a function of storing accessories of the cleaner or accessories of the cleaner station.

**[0014]** Another object of the present disclosure is to provide a cleaner station capable of hygienically managing accessories of a cleaner or accessories of the cleaner station at the time of storing the accessories of the cleaner or the accessories of the cleaner station.

**[Technical Solution]**

**[0015]** In order to achieve the above-mentioned object,

an embodiment of the present disclosure provides a cleaner station, which sucks dust in a dust bin of a cleaner and collects the dust, the cleaner station including: a station housing configured to be coupled to the cleaner; a dust collecting motor accommodated in the station housing and configured to generate a suction force for sucking the dust in the dust bin; and an accessory storage part coupled to a lower end of the station housing and having a storage space for storing an accessory of the cleaner or an accessory of the cleaner station, in which the accessory storage part accommodates at least a part of the cleaner in a state in which the cleaner is coupled to the station housing.

**[0016]** In this case, the accessory storage part may further include a sterilization unit disposed to emit ultraviolet rays toward at least a part of the accommodated cleaner.

**[0017]** In this case, the sterilization unit may be disposed at a lower side of the accessory storage part.

**[0018]** In addition, the dust collecting motor and the storage space may communicate with each other so that air for drying the accessory flows when the dust collecting motor operates.

**[0019]** Meanwhile, the accessory storage part may include: a storage part housing configured to define an external shape of the accessory storage part and configured to accommodate at least a part of a cleaning module coupled to the cleaner; and a drawer part disposed in the storage part housing, configured to define at least a part of the storage space, and configured to be extended like a drawer.

**[0020]** In this case, the dust collecting motor and the drawer part may communicate with each other so that air for drying the accessory flows when the dust collecting motor operates, and the dust collecting motor and the storage part housing may communicate with each other so that air for drying the cleaning module flows.

**[0021]** Meanwhile, the station housing may have a major axis extending in an upward/downward direction, and the drawer part may be configured to be extended in a direction perpendicular to the major axis.

**[0022]** In addition, the drawer part may be configured to be extended laterally or rearward from the station housing when the cleaner is coupled to a front side of the station housing.

**[0023]** In addition, the storage part housing may include an air inlet port configured to allow the inside and outside of the storage part housing to communicate with each other, and the air inlet port may be formed in a front surface of the storage part housing.

**[0024]** In order to achieve the above-mentioned object, another embodiment of the present disclosure provides a cleaner station, which sucks dust in a dust bin of a cleaner and collects the dust, the cleaner station including: a station housing configured to be coupled to the cleaner and having a major axis extending in an upward/downward direction; and an accessory storage part coupled to a lower end of the station housing and having

a storage space for storing an accessory of the cleaner or an accessory of the cleaner station, in which the accessory storage part includes: a storage part housing configured to define an external shape of the accessory storage part; and a drawer part disposed in the storage part housing and configured to be extended like a drawer from the storage part housing in a direction perpendicular to the major axis of the station housing.

**[0025]** In this case, the accessory storage part may further include a sterilization unit disposed in the storage part housing and configured to emit ultraviolet rays toward the drawer part.

**[0026]** In addition, the accessory storage part may further include an airflow generation unit disposed in the storage part housing and configured to operate to generate airflow in the drawer part.

### **[Advantageous Effects]**

**[0027]** According to the present disclosure, the accessory storage part may be coupled to the lower side of the station housing, and the accessory of the cleaner or the accessory of the cleaner station may be stored in the accessory storage part, such that the accessory may be easily stored without concern of losing the accessory.

**[0028]** In addition, according to the present disclosure, the structure for sterilizing the accessory may be provided, such that the accessory of the cleaner or the accessory of the cleaner station may be hygienically stored.

**[0029]** In addition, according to the present disclosure, the structure for drying the accessory may be provided, such that the accessory of the cleaner or the accessory of the cleaner station may be hygienically stored.

### **[Description of Drawings]**

#### **[0030]**

FIG. 1 is a perspective view illustrating a cleaner system including a cleaner station according to an embodiment of the present disclosure.

FIG. 2 is a cross-sectional side view of the cleaner system in FIG. 1.

FIG. 3 is a view illustrating a cleaner configured to be coupled to the cleaner station.

FIG. 4 is an enlarged view of a structure for opening or closing a dust bin of the cleaner.

FIG. 5 is a perspective view of the cleaner station in FIG. 1.

FIG. 6 is a front view of the cleaner station in FIG. 1.

FIG. 7 is a view illustrating an arrangement relationship between the cleaner and a housing of the cleaner station and illustrating a structure for arranging an outer wall surface of the housing.

FIG. 8 is an enlarged view of a coupling part of the housing of the cleaner station to which the cleaner is coupled.

FIG. 9 is an enlarged view of a door unit of the cleaner

station.

FIG. 10 is a view illustrating an arrangement relationship in a state in which a door and a discharge cover of the cleaner are opened.

FIG. 11 is an enlarged view of a cover opening unit of the cleaner station.

FIG. 12 is a cross-sectional view illustrating an accessory storage part included in the embodiment in FIG. 1 when viewed from the lateral side.

FIGS. 13 to 15 are views respectively illustrating cases in which a drawer part is extended in different directions in the embodiment in FIG. 1.

FIGS. 16 and 17 are views illustrating airflow in the embodiment in FIG. 1 in a case in which a storage part housing is not equipped with an air inlet port and a case in which the storage part housing is equipped with the air inlet port.

FIG. 18 is a perspective view illustrating a cleaner system including a cleaner station according to another embodiment of the present disclosure.

FIG. 19 is a perspective view of the cleaner station in FIG. 18.

FIG. 20 is a view for explaining a sterilization unit that may be provided in an accessory storage part included in the embodiment in FIG. 18.

FIG. 21 is a view for explaining an airflow generation unit that may be provided in the accessory storage part included in the embodiment in FIG. 18.

#### [Mode for Invention]

[0031] Hereinafter, exemplary embodiments of the present disclosure will be described in detail with reference to the accompanying drawings.

[0032] The present disclosure may be variously modified and may have various embodiments, and particular embodiments illustrated in the drawings will be specifically described below. The description of the embodiments is not intended to limit the present disclosure to the particular embodiments, but it should be interpreted that the present disclosure is to cover all modifications, equivalents and alternatives falling within the spirit and technical scope of the present disclosure.

[0033] The terminology used herein is used for the purpose of describing particular embodiments only and is not intended to limit the present disclosure. Singular expressions may include plural expressions unless clearly described as different meanings in the context.

[0034] Unless otherwise defined, all terms used herein, including technical or scientific terms, may have the same meaning as commonly understood by those skilled in the art to which the present disclosure pertains. The terms such as those defined in a commonly used dictionary may be interpreted as having meanings consistent with meanings in the context of related technologies and may not be interpreted as ideal or excessively formal meanings unless explicitly defined in the present application.

[0035] FIG. 1 is a perspective view illustrating a cleaner system including a cleaner station according to an embodiment of the present disclosure, and FIG. 2 is a cross-sectional side view of the cleaner system in FIG. 1.

[0036] With reference to FIGS. 1 and 2, a cleaner system 1A according to an embodiment of the present disclosure may include a cleaner station 10A and a cleaner 50.

[0037] In this case, the cleaner station 10A is coupled to the cleaner 50 and configured to perform an operation of sucking dust in a dust bin 516 of the cleaner 50. To this end, the cleaner station 10A may include a station housing 110 having an internal space for accommodating a plurality of components.

[0038] In addition, the cleaner station 10A may serve as a charging stand configured to charge the cleaner 50 by supplying electric power to the cleaner 50 when the cleaner 50 is coupled to the cleaner station 10A.

[0039] The cleaner 50 may be coupled to a front side of the cleaner station 10A. More specifically, a cleaner main body 510 of the cleaner 50 may be coupled to the front side of the cleaner station 10A.

[0040] In this case, the front side may be defined as a side in a direction in which a coupling part 115, which is recessed in the station housing 110 to be described below so as to have a shape corresponding to the cleaner main body 510 of the cleaner 50, is directed. A side, which is opposite to the station housing 110 based on the coupling part 115, may be defined as a rear side. In addition, a direction in which a major axis A1 of the station housing 110 is disposed may be defined as an upward/downward direction. In this case, one side at which the coupling part 115 is disposed may be an upper side.

[0041] Hereinafter, first, a structure of the cleaner 50 configured to be coupled to the cleaner station 10A will be briefly described with reference to FIGS. 3 and 4, and then a structure of the cleaner station 10A will be described subsequently.

[0042] FIG. 3 is a view illustrating the cleaner configured to be coupled to the cleaner station, and FIG. 4 is an enlarged view of a structure for opening or closing the dust bin of the cleaner.

[0043] The cleaner 50 may be a stick cleaner configured to allow a user to grip a handle 514 and directly and manually clean an interior. The cleaner 50 may include the cleaner main body 510.

[0044] The cleaner main body 510 of the cleaner 50 may include a suction part 511 configured to provide a flow path through which air containing dust may flow, a dust separating part 512 configured to communicate with the suction part 511 and separate the dust sucked into the dust separating part 512 through the suction part 511, a suction motor 513 configured to generate a suction force for sucking the air, the handle 514 configured to be gripped by the user, and a battery housing 515 configured to accommodate a battery therein.

[0045] In addition, the cleaner main body 510 of the cleaner 50 may further include the dust bin 516.

**[0046]** In this case, the dust bin 516 may communicate with the dust separating part 512 and store the dust separated by the dust separating part 512.

**[0047]** With reference to FIG. 4, the dust bin 516 may include a dust bin body 5161, a discharge cover 5162, and a coupling lever 5163.

**[0048]** The dust bin body 5161 may have a cylindrical shape and be opened at one side thereof. The air introduced through the suction part 511 passes through the dust separating part 512 accommodated in the dust bin body 5161. In this case, the dust is trapped in the dust bin body 5161, and the air, from which the dust is separated, flows toward the suction motor 513 and is discharged to the outside of the cleaner 50.

**[0049]** The discharge cover 5162 may be rotatably coupled to one open side of the dust bin body 5161. More specifically, the discharge cover 5162 may be disposed at one open side of the dust bin body 5161 and coupled to the dust bin body 5161 by means of a dust bin hinge 5164. In this case, the dust bin hinge 5164 may be disposed at one side adjacent to the battery housing 515. The discharge cover 5162 may rotate about the dust bin hinge 5164 to open or close the dust bin body 5161.

**[0050]** In addition, the discharge cover 5162 may include a coupling hook (not illustrated) disposed at one side adjacent to the suction part 511 and configured to hook-engage with the dust bin body 5161. The coupling hook may extend from the discharge cover 5162. The coupling hook and the dust bin hinge 5164 may be disposed to be opposite to each other.

**[0051]** To release the hook engagement between the discharge cover 5162 and the dust bin body 5161, the coupling lever 5163 may move in a longitudinal direction of the dust bin body 5161 along an outer peripheral surface of the dust bin body 5161. The coupling lever 5163 may be disposed downward based on a state in which the cleaner 50 is coupled to the cleaner station 10A. When an external force is applied to the coupling lever 5163 and thus the coupling lever 5163 moves in the longitudinal direction of the dust bin body 5161 (the direction in which the hook engagement is released), the coupling hook is elastically deformed, such that the hook engagement between the discharge cover 5162 and the dust bin body 5161 may be released.

**[0052]** The cleaner 50 may further include an extension tube 520 (see FIG. 2). The extension tube 520 may communicate with a cleaning module 530. The extension tube 520 may communicate with the main body 510 of the cleaner 50. The extension tube 520 may communicate with the suction part 511 of the main body 510. The extension tube 510 may be formed in a long cylindrical shape.

**[0053]** The cleaner 50 may further include the cleaning module 530. The cleaning module 530 may communicate with the extension tube 520. Therefore, the outside air may be introduced into the cleaner main body 510 of the cleaner 50 via the cleaning module 530 and the extension tube 520 by the suction force generated in the main body

510 of the cleaner 50, such that dust may be collected in the dust bin 516.

**[0054]** Hereinafter, the structure of the cleaner station 10A will be described in more detail with reference to FIGS. 2 and 5 to 10.

**[0055]** FIG. 5 is a perspective view of the cleaner station in FIG. 1, FIG. 6 is a front view of the cleaner station in FIG. 1, and FIG. 7 is a view illustrating an arrangement relationship between the cleaner and the housing of the cleaner station and illustrating a structure for arranging an outer wall surface of the housing.

**[0056]** As described above, the cleaner station 10A may include the station housing 110.

**[0057]** With reference to FIG. 5, the station housing 110 is a component to which the cleaner 50 is coupled. The station housing 110 may define an external appearance of the cleaner station 10A. Specifically, the station housing 110 may be provided in the form of a column including one or more outer wall surfaces. For example, the station housing 110 may be formed in a shape similar to a quadrangular column.

**[0058]** The components, such as a dust collecting motor 130 and a dust trapping part 140, may be accommodated in a space defined in the station housing 110 (see FIG. 2).

**[0059]** The cleaner station 10A may further include an upper cover 113.

**[0060]** With reference to FIGS. 1 and 5, the upper cover 113 may be coupled to the station housing 110. More specifically, the upper cover 113 may be disposed at an upper side of the station housing 110 based on a direction of the major axis A1 and coupled to the station housing 110.

**[0061]** The station housing 110 may be formed to be opened at the upper side thereof based on the direction of the major axis A1. That is, a part of the internal space of the station housing 110, which is disposed at the upper side of the station housing 110, may communicate with the outside of the station housing 110. The coupling part 115 to be described below may extend to the opened upper side of the station housing 110.

**[0062]** The upper cover 113 may be provided to open or close an upper end of the station housing 110. The upper cover 113 may be coupled to the station housing 110 by means of a hinge to open or close the station housing 110. More specifically, the upper cover 113 may be coupled to one side of the upper end of the station housing 110 by means of the hinge. The upper cover 113 may rotate about the hinge and open or close the upper end of the station housing 110. In this case, the hinge may be coupled to one side opposite to one side of the station housing 110 at which the coupling part 115 is provided. For example, in case that the coupling part 115 is provided in a first outer wall surface 111a of the station housing 110 to be described below, the hinge may be coupled to a third outer wall surface 111c. Therefore, the upper cover 113 may open the upper end of the station housing 110 while rotating in a direction away from the

first outer wall surface 111a in which the coupling part 115 is provided.

**[0063]** With the above-mentioned configuration, the user may couple the cleaner 50 to the station housing 110, in the state in which the upper cover 113 is opened, in order to attach the cleaner 50 to the cleaner station 10A. In addition, the user may withdraw the cleaner 50 from the station housing 110, in the state in which the upper cover 113 is opened, in order to detach the cleaner 50 from the cleaner station 10A. Therefore, at the time of attaching or detaching the cleaner 50, a movement range of the cleaner 50 toward the upper side of the station housing 110 based on the direction of the major axis may be freely defined without limitation. In other words, the cleaner 50 may be attached or detached in the state in which the components, which interfere with the upper side of the station housing 110, are excluded, thereby providing the convenience when detaching or attaching the cleaner 50.

**[0064]** The upper cover 113 may also define an upper external appearance of the cleaner station 10A in the state in which the upper cover 113 is coupled to the cleaner station 10A. That is, the upper cover 113 may include an upper surface that is a surface disposed at an uppermost end of the cleaner station 10A based on the direction of the major axis and exposed to the outside.

**[0065]** In this case, the upper surface of the upper cover 113 may be disposed in parallel with the ground surface based on the state in which the upper cover 113 is coupled to the cleaner station 10A. Further, the upper surface of the upper cover 113 may be disposed to be inclined at a predetermined angle with respect to the ground surface.

**[0066]** As described above, the station housing 110 may include at least one outer wall surface. For example, the station housing 110 may include the first outer wall surface 111a in which the coupling part 115 is provided. The station housing 100 may further include a second outer wall surface 111b, the third outer wall surface 111c, and a fourth outer wall surface 111d sequentially disposed counterclockwise when viewed from the first outer wall surface 111a (see FIG. 7).

**[0067]** The station housing 110 may be configured to be opened so that some (e.g., the dust trapping part 140) of the components accommodated in the station housing 110 are exposed. For example, when the cleaner station 10A is viewed from the front side, a right partial region of the first outer wall surface 111a and the second outer wall surface 111b may be integrally opened toward the second outer wall surface 111b, or a left partial region of the first outer wall surface 111a and the fourth outer wall surface 111d may be integrally opened toward the fourth outer wall surface 111d. With this configuration, the dust trapping part 140, which has trapped a predetermined amount of dust, may be replaced with a new dust trapping part by the user.

**[0068]** The coupling part 115 formed in the first outer wall surface 111a may be provided as the first outer wall

surface 111a is recessed toward the inside of the station housing 110 so as to correspond to a shape of a part of the cleaner main body 510. With the above-mentioned configuration, a part of the cleaner 50 may be coupled to the cleaner station 10A, and the cleaner 50 may be supported by the cleaner station 10A. In this case, a part of the cleaner 50 may mean a predetermined region of the dust bin 516 of the cleaner 50 and a predetermined region of the battery housing 515 of the cleaner 50.

**[0069]** Hereinafter, a shape of the coupling part 115 will be described with reference to FIG. 8.

**[0070]** FIG. 8 is an enlarged view of the coupling part of the housing of the cleaner station to which the cleaner is coupled.

**[0071]** The dust bin 516 and the battery housing 515 of the cleaner 50 may be coupled to the coupling part 115. With reference to FIG. 8, the coupling part 115 may include a coupling surface 1151. The coupling surface 1151 may be disposed in parallel with the outer wall surface of the station housing 110. For example, the coupling surface 1151 may mean a surface formed as a part of the first outer wall surface 111a is bent toward the inside of the station housing 110. That is, the coupling surface 1151 may mean a surface having a level difference from the first outer wall surface 111a.

**[0072]** The coupling surface 1151 may be in contact with a bottom surface of the dust bin 516 of the cleaner 50 and a bottom surface of the battery housing 515. In this case, the bottom surface of the dust bin 516 may mean a surface directed toward the ground surface in a state in which the user uses the cleaner 50 or a state in which the cleaner 50 is placed on the ground surface.

**[0073]** A dust passage hole 1151a may be formed in the coupling surface 1151 so that air may be introduced into the station housing 110 from the outside. The dust passage hole 1151a may be provided in the form of a hole corresponding to the shape of the dust bin 516 so that the dust in the dust bin 516 is introduced into the dust trapping part 140. Specifically, the dust passage hole 1151a may correspond to a shape of the discharge cover 5162 so that the discharge cover 5162 may pass through the dust passage hole 1151a when the discharge cover 5162 of the dust bin 516 is opened. The dust passage hole 1151a may be formed to communicate with a suction tube 120 to be described below.

**[0074]** The coupling part 115 may include dust bin guide surfaces 1152. The dust bin guide surfaces 1152 may be connected to the first outer wall surface 111a. In addition, the dust bin guide surfaces 1152 may be connected to the coupling surface 1151.

**[0075]** The dust bin guide surface 1152 may be formed in a shape corresponding to an outer peripheral surface of the dust bin 516. Therefore, it is possible to provide the convenience when stably coupling the cleaner 50 to the coupling surface 1151. The dust bin 516 may be supported by the dust bin guide surfaces 1152 when the cleaner 50 is coupled to the cleaner station 10A.

**[0076]** Charging terminals 1156 may be disposed in

the coupling part 115. Two charging terminals 1156 may be disposed on the coupling surface 1151 and spaced apart from each other. A distance between the two charging terminals 1156 may be equal to a distance between corresponding terminals provided on the cleaner 50. When the cleaner 50 is physically coupled to the cleaner station 10A, the corresponding terminal of the cleaner 50 comes into contact with the charging terminal 1156 of the cleaner station 10A, such that the cleaner 50 and the cleaner station 10A are electrically coupled. As described above, when the battery of the cleaner 50 is electrically coupled to the charging terminal 1156, electric power is supplied to the battery from a power source of the cleaner station 10A, such that the cleaner 50 may be charged.

**[0077]** Meanwhile, the cleaner station 10A according to the embodiment of the present disclosure may be equipped with a control unit (not illustrated) configured to detect electrical coupling between the cleaner station 10A and the cleaner 50 and control a subsequent overall suction operation. The control unit may be accommodated in the housing 100 of the cleaner station 10A.

**[0078]** In this case, the control unit may include any type of device capable of processing data, such as a processor. Here, the 'processor' may refer to a data processing device embedded in hardware and having, for example, a circuit physically structured to perform a function represented by codes or instructions included in a program. Examples of the data processing device embedded in hardware may include processing devices such as a microprocessor, a central processing unit (CPU), a processor core, a multiprocessor, an application-specific integrated circuit (ASIC), or a field programmable gate array (FPGA), but the scope of the present disclosure is not limited thereto.

**[0079]** The coupling part 115 may include guide protrusions 1153. The guide protrusions 1153 may be disposed on the coupling surface 1151 (see FIG. 6). The guide protrusions 1153 may protrude from the coupling surface 1151. Two guide protrusions 1153 may be disposed to be spaced apart from each other. A distance between the two guide protrusions 1153, which are spaced apart from each other, may correspond to a width of the battery housing 515 of the cleaner 50. Therefore, it is possible to provide the convenience when coupling the cleaner 50 to the coupling surface 1151.

**[0080]** The coupling part 115 may include coupling part sidewalls. The coupling part sidewalls may mean wall surfaces disposed at two opposite sides of the coupling surface 1151 and be perpendicularly connected to the coupling surface 1151. The coupling part sidewalls may be connected to the first outer wall surface 111a. In addition, the coupling part sidewalls may be connected to the dust bin guide surfaces 1152. That is, the coupling part sidewalls may define surfaces connected to the dust bin guide surfaces 1152. Therefore, it is possible to prevent the cleaner 50 from swaying in a leftward/rightward direction. The cleaner station 10A may stably accommodate the cleaner 50.

**[0081]** The coupling part 115 may include a coupling sensor (not illustrated). The coupling sensor may detect whether the cleaner 50 is coupled to the coupling part 115.

5 **[0082]** The coupling sensor may include a contact sensor. For example, the coupling sensor may include a micro-switch. In this case, the coupling sensor may be disposed on the guide protrusion 1153. Therefore, when the battery housing 515 of the cleaner 50 may be coupled to a portion between the pair of guide protrusions 1153, the coupling sensor may detect the cleaner 50 while coming into contact with the battery housing 515. Meanwhile, the coupling sensor may include a contactless sensor. For example, the coupling sensor may be an infrared sensor.

10 **[0083]** The cleaner station 10A may include the suction tube 120.

15 **[0084]** With reference to FIG. 2, the suction tube 120 may be accommodated in the station housing 110. When a door 151 to be described below is opened, the suction tube 120 may communicate with the dust bin 516 of the cleaner 50 through the dust passage hole 1151a. The suction tube 120 may be disposed in the upward/downward direction in the station housing 110. The arrangement direction of the suction tube 120 may be disposed substantially in parallel with the major axis A1 of the station housing 110. The suction tube 120 may be provided in the form of a tube having a space therein and configured to define a passageway through dust moves. One side of the suction tube 120, which is coupled to the dust passage hole 1151a, may have a larger cross-sectional area than the other side of the suction tube 120 coupled to the dust trapping part 140. That is, the suction tube 120 may be provided in the form of a tube having a cross-sectional area that decreases from the upper side toward the lower side.

20 **[0085]** The cleaner station 10A may include the dust collecting motor 130.

25 **[0086]** With reference to FIG. 2, the dust collecting motor 130 may be accommodated and disposed in the station housing 110 and generate a suction force for sucking the dust in the dust bin 516 of the cleaner 50. The dust collecting motor 130 may be disposed at the relatively lower side in the station housing 110. Therefore, an air flow, which is directed from the upper side toward the lower side, may be formed in the station housing 110. The dust collecting motor 130 may be accommodated in a dust collecting motor chamber 133. The dust collecting motor chamber 133 may be disposed in the station housing 110 and provides a space that accommodates the dust collecting motor 130. An outer surface of the dust collecting motor chamber 133 and an inner surface of the station housing 110 may be spaced apart from each other at a predetermined distance to define a space, and an accessory drying flow path 135 to be described below may be disposed in the space.

30 **[0087]** The cleaner station 10A may include the dust trapping part 140.

35 **[0088]** With reference to FIG. 2, the dust trapping part

140 may be accommodated in the station housing 110 and disposed above the dust collecting motor 130. Because the dust trapping part 140 is disposed above the dust collecting motor 130, the dust, which is sucked from the inside of the dust bin 516 of the cleaner 50, may be collected in the dust trapping part 140 when the dust collecting motor 130 generates the suction force. That is, the dust may be trapped by the dust trapping part 140 through a suction route connected to the dust bin 516 of the cleaner 50, the suction tube 120, and the dust trapping part 140.

**[0089]** The dust trapping part 140 may be detachably coupled to the station housing 110. Therefore, when the station housing 110 is opened, the dust trapping part 140 may be separated from the station housing 110 and discarded, and a new dust trapping part 140 may be coupled to the station housing 110. That is, the dust trapping part 140 may be defined as a consumable component.

**[0090]** When the suction force is generated by the dust collecting motor 130, a volume of the dust trapping part 140 is increased, such that the dust may be accommodated in the dust trapping part 140. To this end, the dust trapping part 140 may be made of a material that transmits air but does not transmit foreign substances such as dust. For example, the dust trapping part 140 may be made of a non-woven fabric material and have a hexahedral shape when the dust trapping part 140 has an increased volume.

**[0091]** Meanwhile, one end of the suction tube 120 may be coupled to the dust passage hole 1151a, and the other end of the suction tube 120 may be coupled to the dust trapping part 140. Therefore, when the dust collecting motor 130 operates and generates the suction force, air flows from one end of the suction tube 120 toward the other end of the suction tube 120. The air, which contains foreign substances and flows in the dust bin 516 of the cleaner 50, moves to the dust trapping part 140 through the suction tube 120, such that the air moves out of the dust trapping part 140 while leaving the foreign substances in the dust trapping part 140.

**[0092]** The cleaner station 10A may include a door unit 150.

**[0093]** FIG. 9 is an enlarged view of the door unit of the cleaner station, and FIG. 10 is a view illustrating an arrangement relationship in a state in which the door and the discharge cover of the cleaner are opened.

**[0094]** With reference to FIG. 9, the door unit 150 may be disposed over the coupling part 115 and a rear side of the coupling part 115 and include the door 151, a door arm 152, and a door motor part 153.

**[0095]** The door 151 may be disposed in the coupling part 115 and opened so that the outside of the station housing 110 communicates with the suction tube 120. More specifically, the door 151 may be disposed in the station housing 110 and coupled to a door hinge 154. When the door 151 moves toward the upper side in the station housing 110 while rotating about the door hinge 154, the inside and outside of the station housing 110

may be opened or closed. More specifically, the door hinge 154 may be provided at a side opposite to the coupling surface 1151 and disposed adjacent to an upper end of the dust passage hole 1151a. The door 151 may be coupled to the door hinge 154 and disposed at a position at which the door 151 closes the dust passage hole 1151a.

**[0096]** With reference to FIG. 10, the state in which the door 151 is opened may mean a state in which the door 151 rotates about the door hinge 154 in a direction (first direction R1) toward the inside of the station housing 110, and the outside of the station housing 110 communicates with the suction tube 120.

**[0097]** In addition, the state in which the door 151 is closed may mean a state in which the door 151 rotates about the door hinge 154 in a direction (second direction R2) opposite to the first direction, the dust passage hole 1151a is closed, and the outside of the station housing 110 does not communicate with the suction tube 120.

**[0098]** The door 151 may have a shape corresponding to the dust passage hole 1151a so that the door 151 may close the inside and outside of the station housing 110 by blocking the dust passage hole 1151a. For example, the door 151 may be formed in a circular shape. The door 151 may be defined as one region of the coupling surface 1151 in the state in which the door 151 blocks the dust passage hole 1151a.

**[0099]** The door arm 152 may connect the door 151 and the door motor part 153 and open or close the door 151 by using power generated by the door motor part 153.

**[0100]** For example, the door arm 152 may include a first door arm 152a and a second door arm 152b. One end of the first door arm 152a may be coupled to the door motor part 153. The first door arm 152a may be rotated by power transmitted by the door motor part 153. The other end of the first door arm 152a may be rotatably coupled to the second door arm 152b. The first door arm 152a may transmit a force, which is transmitted from a door motor 153a, to the second door arm 152b. One end of the second door arm 152b may be coupled to the first door arm 152a. The other end of the second door arm 152b may be coupled to the door 151. The second door arm 152b may push or pull the door 151.

**[0101]** The door 151 may rotate in the first direction R1 when the door arm 152 pulls the door 151 in the state in which the door 151 is closed. Meanwhile, the door 151 may rotate in the second direction R2 when the door arm 152 pushes the door 151 in the state in which the door 151 is opened.

**[0102]** The door motor part 153 may provide power, which rotates the door 151, to the door arm 152. Specifically, the door motor part 153 may rotate the door arm 152 in a forward or reverse direction. In this case, the forward direction may mean the first direction R1 that is a direction in which the door arm 152 pulls the door 151 toward the inside of the station housing 110. In addition, the reverse direction may mean the second direction R2 that is a direction in which the door arm 152 pushes the

door 151 toward the outside of the station housing 110.

**[0103]** The door motor part 153 may include one or more mechanical components for transmitting power to the door arm 152. For example, the door motor part 153 may include the door motor 153a configured to generate power, and one or more gear components 153b configured to receive power of the door motor 153a. For example, as in the embodiment illustrated in FIG. 10, the gear components 153b may be configured such that a worm gear, a worm wheel, and a plurality of gears are coupled. In this case, the first door arm 152a may be coupled to the gear components 153b and rotated. As another example, the door motor part 153 includes only the door motor 153a, such that power may be transmitted directly to the first door arm 152a from the door motor 153a. That is, the structure for transmitting power to the door arm 152 is not particularly limited.

**[0104]** The cleaner station 10A may include a cover opening unit 170.

**[0105]** FIG. 11 is an enlarged view of the cover opening unit of the cleaner station.

**[0106]** With reference to FIGS. 2 and 11, the cover opening unit 170 may be provided in the station housing 110 and disposed at the lower side of the coupling part 115. The cover opening unit 170 is configured to open the discharge cover 5162 of the cleaner 50. The cover opening unit 170 may include a push protrusion 171, cover opening gears 172, and a cover opening motor (not illustrated).

**[0107]** The push protrusion 171 may be disposed at a position at which the push protrusion 171 may push the coupling lever 5163 when the cleaner 50 is coupled to the coupling part 115. The push protrusion 171 may reciprocally reciprocate to press the coupling lever 5163. Specifically, the push protrusion 171 may be disposed between the dust bin guide surfaces 1152. A protrusion moving hole, which is formed through the coupling part 115 in the upward/downward direction, may be formed between the dust bin guide surfaces 1152. The push protrusion 171 may be disposed to pass through the protrusion moving hole and exposed to the outside of the station housing 110. The push protrusion 171 may be coupled to the cover opening gears 172 and moved together with the cover opening gears 172 by the movements of the cover opening gears 172.

**[0108]** The cover opening motor may provide the cover opening gears 172 with power for moving the push protrusion 171.

**[0109]** The cover opening gears 172 may be coupled to the cover opening motor and move the push protrusion 171 by using the power from the cover opening motor. More specifically, the cover opening gears 172 may include a first cover opening gear 172a configured to receive rotational power from a shaft of the cover opening motor, and a second cover opening gear 172b configured to engage with the first cover opening gear 172a and transmit a rectilinear reciprocating motion to the push protrusion 171.

**[0110]** In this case, for example, the first cover opening gear 172a may be configured as a pinion gear, and the second cover opening gear 172b may be configured as a rack gear.

5 **[0111]** In other words, when the cover opening motor moves the push protrusion 171 by means of the cover opening gears 172 in the state in which the cleaner main body 510 of the cleaner 50 is coupled to the coupling part 115, the push protrusion 171 may press the coupling lever 5163, such that the discharge cover 5162 may be opened.

**[0112]** Next, a configuration in which the cleaner station 10A and the cleaner 50 are coupled to each other will be geometrically described.

10 **[0113]** With reference back to FIG. 2, as described above, the cleaner 50 may be coupled to the front side of the station housing 110. More specifically, some components of the cleaner main body 510 of the cleaner 50 may be coupled to the coupling part 115, such that the entire cleaner 50 may be mounted on the cleaner station 10A. More specifically, when the cleaner 50 is coupled to the coupling part 115 of the station housing 110, a longitudinal axis A2 of the dust bin 516 of the cleaner 50 may be disposed substantially in parallel with the ground surface. In addition, when the cleaner 50 is coupled to the coupling part 115 of the station housing 110, the longitudinal axis A2 of the dust bin 516 of the cleaner 50 may be disposed to be substantially perpendicular to the major axis A1 of the station housing 110. In this case, the cleaner 50 may be mounted such that a longitudinal axis A3 of the suction part 511 of the cleaner 50 is disposed substantially in parallel with the major axis A1 of the station housing 110.

25 **[0114]** Meanwhile, the term 'coupling' between the cleaner 50 and the cleaner station 10A, which is repeatedly mentioned throughout the present specification, is a concept including physical coupling, electrical coupling, and fluidic coupling.

30 **[0115]** Specifically, the physical coupling may refer to the connection in the state in which the cleaner 50 is seated on the coupling part 115 by the user and fixed to and/or sealed with the cleaner station 10A by a mechanical component to enable the fluidic coupling to be described below.

35 **[0116]** In addition, the electrical coupling may refer to the connection in the state in which the battery of the cleaner 50 comes into contact with the charging terminal 1156, and the cleaner 50 may be supplied with electric power from the cleaner station 10A or the connection between the cleaner 50 and the cleaner station 10A in the state in which the physical coupling may be detected by various types of sensors.

40 **[0117]** In addition, the fluidic coupling may refer to a state in which the door 151 of the cleaner station 10A is opened, and the discharge cover 5162 of the cleaner 50 is also opened, such that the dust bin 516 of the cleaner 50 communicates with the suction tube 120 of the cleaner station 10A. The fluidic coupling is implemented after the

physical coupling and/or the electrical coupling is implemented. In the state in which the fluidic coupling is implemented, the air, together with the dust, in the dust bin 516 of the cleaner 50 may pass through the suction tube 120 and move to the dust trapping part 140.

**[0118]** As described above, with the configuration in which the cleaner 50 is coupled to the cleaner station 10A and the dust in the dust bin 516 of the cleaner 50 is collected in the dust trapping part 140 by the suction force of the dust collecting motor 130, it is possible to eliminate the inconvenience caused because the user needs to directly empty the dust bin of the stick cleaner all the time. In addition, it is possible to prevent dust from scattering when the user directly empties the dust bin of the stick cleaner.

**[0119]** Hereinafter, an accessory storage part 180 will be described with reference to FIGS. 1, 5, and 12.

**[0120]** FIG. 12 is a cross-sectional view illustrating the accessory storage part included in the embodiment in FIG. 1 when viewed from the lateral side.

**[0121]** With reference to FIGS. 1, 5, and 12, the cleaner station 10A may further include the accessory storage part 180.

**[0122]** The accessory storage part 180 may be coupled to a lower end of the station housing 110. The accessory storage part 180 may have a storage space for storing accessories of the cleaner 50 or accessories of the cleaner station 10A.

**[0123]** In this case, accessories 70 may include components coupled to the cleaner 50 or the cleaner station 10A and configured to allow the cleaner 50 or the cleaner station 10A to perform particular functions. Alternatively, the accessories 70 may include components configured to assist the functions of the cleaner 50 or the cleaner station 10A without being coupled to the cleaner 50 or the cleaner station 10A.

**[0124]** The accessories 70 may include a cleaning module replaceably coupled to the cleaner 50. For example, the cleaning module may be a suction cleaning module used to suck dust or a wet mop cleaning module attached with a mop and used to wipe a cleaning target surface. The cleaning module configured to be coupled to the cleaner 50 may be provided as a plurality of cleaning modules depending on the use thereof. The user may select a cleaning module suitable for the intended cleaning application and use the cleaning module after coupling the cleaning module to an end of the extension tube 520 of the cleaner 50.

**[0125]** In addition, the accessories 70 may include a mop configured to be attached to a bottom surface of the wet mop cleaning module.

**[0126]** In addition, the accessories 70 may include a filter. For example, the accessories 70 may include a prefilter, a HEPA filter, or the like disposed in the station housing 110. Alternatively, for example, the accessories 70 may include a prefilter, a HEPA filter, or the like coupled to the cleaner 50.

**[0127]** In addition, the accessories 70 may include a

dust bag disposed in the station housing 110.

**[0128]** In addition, the accessories 70 may include various accessory tools configured to assist the function of the cleaner 50 or the cleaner station 10A. For example, the accessories 70 may include a brush configured to brush off foreign substances attached to the cleaning module 530.

**[0129]** The accessory storage part 180 may accommodate at least a part of the cleaner 50 in the state in which the cleaner 50 is coupled to the station housing 110. More specifically, the accessory storage part 180 may include a storage part housing 181 and a drawer part 182.

**[0130]** The storage part housing 181 may define an external shape of the accessory storage part 180. For example, the storage part housing 181 may be provided in a rectangular parallelepiped shape in which a storage space is provided. An upper surface of the storage part housing 181 may be coupled to a lower end of the cleaner station 10A.

**[0131]** In the state in which the cleaner 50 is coupled to the cleaner station 10A, a partial region of the upper surface of the storage part housing 181 may be opened so that at least a part of the cleaner 50 is accommodated in the storage space. More specifically, the front side of the storage part housing 181 has an opening portion 1811 directed upward, such that a part of the cleaning module of the cleaner may pass through the opening portion 1811 and be accommodated in the storage space.

**[0132]** Hereinafter, the drawer part 182 will be described further with reference to FIGS. 13 to 15.

**[0133]** FIGS. 13 to 15 are views respectively illustrating cases in which the drawer part is extended in different directions in the embodiment in FIG. 1.

**[0134]** With reference to FIGS. 12 to 15, the drawer part 182 may be disposed in the storage part housing 181. The drawer part 182 may define at least a part of the storage space. The drawer part 182 may be configured to be extended like a drawer. More specifically, the drawer part 182 may divide the storage space into a first storage space 180a provided to accommodate a part of the cleaning module 530 coupled to the cleaner 50, and a second storage space 180b provided to accommodate the other accessories 70.

**[0135]** The drawer part 182 may be formed in a rectangular parallelepiped shape opened at an upper side thereof. The drawer part 182 may include a drawer part bottom surface 1821 having a quadrangular flat plate shape, a drawer part front surface 1822, a drawer part rear surface 1823, and a drawer part lateral surface 1824. The drawer part front surface 1822 and the drawer part rear surface 1823 may be perpendicularly connected to the drawer part bottom surface 1821 and disposed to face each other. The drawer part front surface 1821 may be disposed to be directed toward the cleaning module 530. The drawer part lateral surface 1824 may connect the drawer part front surface 1822 and the drawer part rear surface 1823.

**[0136]** The drawer part bottom surface 1821, together with the drawer part front surface 1822, the drawer part rear surface 1823, and the drawer part lateral surface 1824, may define a space in which the accessories 70 are accommodated. In this case, the defined space may be defined as the second storage space 180b.

**[0137]** The first storage space 180a may mean a space disposed below the opening portion 1811 and exposed at ordinary times. The second storage space 180b may mean a space having an interior that is covered by the upper surface of the storage part housing 181 as the second storage space 180b is disposed below the station housing 110 in a state in which the drawer part 182 is retracted. When the drawer part 182 is extended, the second storage space 180b is exposed to the outside.

**[0138]** The drawer part 182 may be configured to be extended in a direction perpendicular to the major axis A1 of the station housing 110.

**[0139]** In a possible embodiment, the drawer part 182 may be extended forward from the station housing 110. That is, the drawer part 182 may be extended toward the first storage space 180a (see FIG. 13).

**[0140]** In the exemplary embodiment, in case that the cleaner 50 is coupled to the front side of the station housing 110, the drawer part 182 may be extended rearward from the station housing 110. This embodiment has an advantage in that the drawer part 182 may be extended without interfering with the cleaning module 530 accommodated in the first storage space 180a (see FIG. 14).

**[0141]** In a more exemplary embodiment, in case that the cleaner 50 is coupled to the front side of the station housing 110, the drawer part 182 may be extended laterally from the station housing 110. More specifically, in this case, the drawer part 182 may be extended leftward or rightward from the station housing 110. This embodiment also has an advantage in that the drawer part 182 may be extended without interfering with the cleaning module 530 accommodated in the first storage space 180a, and a rear surface (the third outer wall surface 111c) of the station housing 110 may be disposed on and attached to an interior wall surface W, which improves spatial utilization (see FIG. 15).

**[0142]** Hereinafter, a sterilization unit 183 will be described with reference back to FIG. 12.

**[0143]** With reference to FIG. 12, the accessory storage part 180 may further include the sterilization unit 183.

**[0144]** The sterilization unit 183 may be disposed to emit ultraviolet rays toward at least a part of the cleaner 50 accommodated in the accessory storage part 180. More specifically, the sterilization unit 183 may be disposed to emit ultraviolet rays toward the cleaning module 530 accommodated in the first storage space 180a of the storage part housing 181 in the state in which the cleaner 50 is coupled to the cleaner station 10A.

**[0145]** The sterilization unit 183 may include one or more light-emitting diodes configured to emit ultraviolet rays. The ultraviolet rays damage the DNA double helixes of microorganisms, thereby suppressing the growth of

microorganisms. Therefore, the emitted ultraviolet rays sterilize foreign substances containing microorganisms such as bacteria.

**[0146]** The sterilization unit 183 may be electrically connected to the control unit (not illustrated) of the cleaner station 10A, and the control unit may control the emission of ultraviolet rays. In a possible embodiment, an operation of turning on or off the emission of ultraviolet rays may be controlled by the user's input. Alternatively, in a possible embodiment, the operation of turning on or off the emission of ultraviolet rays may be controlled by pre-set logic.

**[0147]** With this configuration, it is possible to hygienically manage the cleaning module 530 of the cleaner 50 coupled to the cleaner station 10A after the cleaning process is completed.

**[0148]** In the exemplary embodiment, the sterilization unit 183 may be disposed at a lower side of the accessory storage part 180. More specifically, the sterilization unit 183 may be disposed on a bottom surface in the storage part housing 181. The sterilization unit 183 may have an appropriate width in order to emit ultraviolet rays toward not only the first storage space 180a but also the second storage space 180b. From another point of view, the sterilization unit 183 may be disposed to face both a lower portion of the cleaning module 530 and the drawer part bottom surface 1821.

**[0149]** Meanwhile, at least a partial region of the drawer part bottom surface 1821 may be made of a material that may transmit ultraviolet rays emitted by the sterilization unit 183. For example, at least a partial region of the drawer part bottom surface 1821 may be made of quartz. It is known that the quartz does not hinder the transmission of the ultraviolet rays in the UV-C region. However, this configuration is just an example. Any material may be used for at least a partial region of the drawer part bottom surface 1821 without limitation as long as the material may transmit ultraviolet rays.

**[0150]** This configuration has an advantage in that it is possible to hygienically manage not only the cleaning module 530 of the cleaner 50 but also the accessories 70 stored in the second storage space 180b that is the interior of the drawer part 182.

**[0151]** Meanwhile, the dust collecting motor 130 and the storage space may communicate with each other so that air for drying the accessories 70 may flow when the dust collecting motor 130 of the cleaner station 10A operates.

**[0152]** FIGS. 16 and 17 are views illustrating airflow in the embodiment in FIG. 1 in a case in which the storage part housing is not equipped with an air inlet port and a case in which the storage part housing is equipped with the air inlet port.

**[0153]** With reference to FIGS. 16 and 17, the dust collecting motor 130 and the drawer part 182 may communicate with each other so that the air for drying the accessories 70 stored in the second storage space 180b flows. To this end, the accessory drying flow path 135

may be disposed in the station housing 110 and guide the airflow into the internal space of the dust collecting motor chamber 133. The accessory drying flow path 135 may be formed in the form of a hollow tube. The accessory drying flow path 135 may be disposed in the station housing 110, and one end of the accessory drying flow path 135 extend beyond an upper side of the dust collecting motor 130, such that the inside of the accessory drying flow path 135 and the internal space of the dust collecting motor chamber 133 may communicate with each other. The other end of the accessory drying flow path 135 may communicate with the internal space (the second storage space 180b) of the drawer part 182. Therefore, when the dust collecting motor 130 operates, a suction force may be generated to suck air through the accessory drying flow path 135 from the second storage space 180b that is the internal space of the drawer part 182. Therefore, the airflow for drying the accessories may be generated in the second storage space 180b by the suction force. The air sucked by the dust collecting motor 130 may be discharged to the outside of the station housing 110 through an air discharge portion (not illustrated) of the cleaner station 10A.

**[0154]** Typically, spares of washable accessories, such as prefilters, HEPA filters, and mops, are provided to hygienically manage the accessories, and the accessories need to be periodically washed or replaced after the accessories are used for a predetermined period of time. When the accessory 70, which has been used, is washed and then stored in the drawer part 182, the accessory 70 may be quickly dried by the suction force generated by the dust collecting motor 130.

**[0155]** Meanwhile, the dust collecting motor 130 may communicate with the first storage space 180a, which is the internal space of the storage part housing 181, so that the airflow for drying the cleaning module 530 coupled to the cleaner 50 is generated by the operation of the dust collecting motor 130. More specifically, the dust collecting motor 130 and the second storage space 180b, which is the internal space of the drawer part 182, may communicate with each other, and the second storage space 180b and the first storage space 180a may communicate with each other. As a result, the dust collecting motor 130 and the first storage space 180a may communicate with each other. To this end, separate air passage means may be provided in the upper surface of the storage part housing 181 and the drawer part front surface 1822. For example, the air passage means may be provided in the form of a hole formed through the upper surface of the storage part housing 181 and a hole formed through the drawer part front surface 1822. Therefore, when the dust collecting motor 130 operates, the suction force for sucking the air in the second storage space 180b, which is the internal space of the drawer part 182, through the accessory drying flow path 135 may be generated, and the airflow may be generated in the first storage space 180a that communicates with the second storage space 180b.

**[0156]** With this configuration, there is an advantage in that the cleaning module 530 coupled to the cleaner 50 may be quickly dried by the suction force generated by the dust collecting motor 130. In particular, in case that the cleaning module 530 is the wet mop cleaning module, the mop may be dried by the airflow generated by the suction force generated by the dust collecting motor 130. Therefore, it is possible to suppress the occurrence of offensive odor or the growth of bacteria even though the used mop is left unattended in a wet state.

**[0157]** In the exemplary embodiment, the storage part housing 181 may include an air inlet port 1812 configured to allow the inside and outside of the storage part housing 181 to communicate with each other (see FIG. 17). The air inlet port 1812 may be formed in a front surface of the storage part housing 181. More specifically, the air inlet port 1812 may be formed in the front surface of the storage part housing 181 and disposed adjacent to the bottom surface of the storage part housing 181.

**[0158]** With this configuration, when the dust collecting motor 130 generates the suction force, airflow may be generated in the storage part housing 181, and the air may flow along the lower portion of the cleaning module 530. With reference to FIGS. 16 and 17, in the embodiment in which the air inlet port 1812 is not provided, the air is introduced only through the opening portion 1811 of the storage part housing 181, such that the intensity of the airflow along the lower portion of the cleaning module 530 is relatively low (see FIG. 16). On the contrary, in case that the air inlet port 1812 is provided, the air is also introduced through the air inlet port 1812, such that the strong airflow is generated along the lower portion of the cleaning module 530 (see FIG. 17), which further improves efficiency in drying the mop or the like attached to the lower portion of the cleaning module 530.

**[0159]** FIG. 18 is a perspective view illustrating a cleaner system including a cleaner station according to another embodiment of the present disclosure, and FIG. 19 is a perspective view of the cleaner station in FIG. 18.

**[0160]** Because a cleaner system 1B including a cleaner station 10B according to another embodiment of the present disclosure is identical to the embodiment in FIG. 1 in terms of the components (e.g., the coupling part 115, the suction tube 120, the dust collecting motor 130, the dust trapping part 140, the door unit 150, the cover opening unit 170, and the like) excluding an accessory storage part 190, a repeated description thereof will be omitted.

**[0161]** In the cleaner station 10B according to another embodiment, as in the previous embodiment, the accessory storage part 190 may be coupled to the lower end of the station housing 110 and have therein a storage space for storing the accessories of the cleaner 50 or the accessories of the cleaner station 10B.

**[0162]** The accessory storage part 190 may include a storage part housing 191 and a drawer part 192.

**[0163]** The storage part housing 191 may define an external shape of the accessory storage part 190. For example, the storage part housing 191 may have a rec-

tangular parallelepiped external shape. An upper surface of the storage part housing 191 may be coupled to a lower surface of the station housing 110. An area of the upper surface of the storage part housing 191 may be substantially equal to an area of the lower surface of the station housing 110.

**[0164]** The drawer part 192 may be disposed in the storage part housing 191. More specifically, the drawer part 192 may be accommodated in the storage part housing 191 and extended like a drawer from the storage part housing 191. In this case, the drawer part 192 may be configured to be extended in the direction perpendicular to the major axis A1 of the station housing 110. In a possible embodiment, the drawer part 192 may be extended forward from the station housing 110. Alternatively, in a possible embodiment, the drawer part 192 may be extended rearward from the station housing 110. Alternatively, in a possible embodiment, the drawer part 192 may be extended laterally from the station housing 110.

**[0165]** The drawer part 192 may be formed in a rectangular parallelepiped shape opened at an upper side thereof. More specifically, the drawer part 192 may include a drawer part bottom surface 1921 having a quadrangular flat plate shape, a drawer part front surface 1922, a drawer part rear surface 1923, and a drawer part lateral surface 1924. The drawer part front surface 1922 and the drawer part rear surface 1923 may be perpendicularly connected to the drawer part bottom surface 1921 and disposed to face each other. The drawer part lateral surface 1924 may connect the drawer part front surface 1922 and the drawer part rear surface 1923. After the user extends the drawer part 192 from the storage part housing 191, the user may store the accessory 70 in the storage space, which is formed in the drawer part 192, through the opened upper side of the drawer part 192, or the user may take out the accessory, which is stored in the drawer part 192, through the opened upper side.

**[0166]** FIG. 20 is a view for explaining a sterilization unit that may be provided in the accessory storage part included in the embodiment in FIG. 18.

**[0167]** With reference to FIG. 20, the accessory storage part 190 may further include a sterilization unit 193.

**[0168]** The sterilization unit 193 may be disposed in the storage part housing 191 and emit ultraviolet rays toward the drawer part 192. The sterilization unit 193 may include one or more light-emitting diodes configured to emit ultraviolet rays.

**[0169]** In a possible embodiment, the sterilization unit 193 may be disposed on the upper surface of the storage part housing 191 and configured to emit ultraviolet rays toward the opened upper side of the drawer part 192. With this configuration, it is possible to hygienically manage the accessories 70 stored in the storage space in the drawer part 192.

**[0170]** Alternatively, in a possible embodiment, the sterilization unit 193 may be disposed on a lower surface of the storage part housing 191 and configured to emit

ultraviolet rays toward the drawer part bottom surface 1921. In this case, at least a partial region of the drawer part bottom surface 1921 may be made of a material that may transmit ultraviolet rays emitted by the sterilization unit 193. For example, at least a partial region of the drawer part bottom surface 1921 may be made of quartz. It is known that the quartz does not hinder the transmission of the ultraviolet rays in the UV-C region. However, this configuration is just an example. Any material may be used for at least a partial region of the drawer part bottom surface 1921 without limitation as long as the material may transmit ultraviolet rays.

**[0171]** Alternatively, in a possible embodiment, the sterilization unit 193 may be disposed on a lateral surface of the storage part housing 191 and emit ultraviolet rays toward the drawer part lateral surface 1924. In this case, at least a partial region of the drawer part lateral surface 1924 may be made of a material that may transmit ultraviolet rays emitted by the sterilization unit 193.

**[0172]** The sterilization unit 193 may be electrically connected to a control unit (not illustrated) of the cleaner station 10B, and the control unit may control the emission of ultraviolet rays. In a possible embodiment, an operation of turning on or off the emission of ultraviolet rays may be controlled by the user's input. Alternatively, in a possible embodiment, the operation of turning on or off the emission of ultraviolet rays may be controlled by preset logic.

**[0173]** FIG. 21 is a view for explaining an airflow generation unit that may be provided in the accessory storage part included in the embodiment in FIG. 18.

**[0174]** With reference to FIG. 21, the accessory storage part 190 may further include an airflow generation unit 194.

**[0175]** The airflow generation unit 194 may be disposed in the storage part housing 191 and operate to generate airflow in the drawer part 192. More specifically, the airflow generation unit 194 may include an airflow generation motor 1941, and a fan 1942 configured to be rotated by an operation of the airflow generation motor 1941. In this case, the airflow generation motor 1941 may be electrically connected to the control unit (not illustrated) of the cleaner station 10B, and the control unit may control an operation of the airflow generation motor 1941. Therefore, when the control unit controls and operates the airflow generation motor 1941, the fan 1942 is rotated to allow air to flow, such that the airflow is generated.

**[0176]** The airflow generation unit 194 may be disposed at the upper side of the storage part housing 191. More specifically, the airflow generation unit 194 may be disposed in the storage part housing 191 and disposed above the drawer part 192 so that the airflow is generated in the storage space in the drawer part 192 and directed toward the opened upper side of the drawer part 192 when the airflow generation motor 1941 operates.

**[0177]** With this configuration, it is possible to quickly dry the accessory 70 stored in the drawer part 192. For example, the user may separate the prefilter or the HEPA

filter from the cleaner station 10B, wash the prefilter or the HEPA filter, and then store the prefilter or the HEPA filter in the drawer part 192. The prefilter or the HEPA filter stored in the drawer part 192 may be dried by the airflow generated by the airflow generation unit 194. Alternatively, for example, the user may separate the mop from the wet mop cleaning module of the cleaner 50, wash the mop, and then store the mop in the drawer part 192. The stored mop may be dried by the airflow generated by the airflow generation unit 194.

[0178] Meanwhile, in case that the airflow generation unit 194 is provided in the cleaner station 10B according to another embodiment, the accessory drying flow path 135 of the cleaner station 10A, which has been described in the previous embodiment, is not provided in the station housing 110.

[0179] According to the present disclosure described above, the accessory storage part may be coupled to the lower side of the station housing, and the accessory of the cleaner or the accessory of the cleaner station may be stored in the accessory storage part, such that the accessory may be easily stored without concern of losing the accessory.

[0180] In addition, according to the present disclosure, the structure for sterilizing the accessory may be provided, such that the accessory of the cleaner or the accessory of the cleaner station may be hygienically stored.

[0181] In addition, according to the present disclosure, the structure for drying the accessory may be provided, such that the accessory of the cleaner or the accessory of the cleaner station may be hygienically stored.

[0182] While the present disclosure has been described with reference to the specific embodiments, the specific embodiments are only for specifically explaining the present disclosure, and the present disclosure is not limited to the specific embodiments. It is apparent that the present disclosure may be modified or altered by those skilled in the art without departing from the technical spirit of the present disclosure.

[0183] All the simple modifications or alterations to the present disclosure fall within the scope of the present disclosure, and the specific protection scope of the present disclosure will be defined by the appended claims.

**Claims**

1. A cleaner station, which sucks dust in a dust bin of a cleaner and collects the dust, the cleaner station comprising:
  - a station housing configured to be coupled to the cleaner;
  - a dust collecting motor accommodated in the station housing and configured to generate a suction force for sucking the dust in the dust bin; and

an accessory storage part coupled to a lower end of the station housing and having a storage space for storing an accessory of the cleaner or an accessory of the cleaner station, wherein the accessory storage part accommodates at least a part of the cleaner in a state in which the cleaner is coupled to the station housing.

2. The cleaner station of claim 1, wherein the accessory storage part further comprises a sterilization unit disposed to emit ultraviolet rays toward at least a part of the accommodated cleaner.

3. The cleaner station of claim 2, wherein the sterilization unit is disposed at a lower side of the accessory storage part.

4. The cleaner station of claim 1, wherein the dust collecting motor and the storage space communicate with each other so that air for drying the accessory flows when the dust collecting motor operates.

5. The cleaner station of claim 1, wherein the accessory storage part comprises:

a storage part housing configured to define an external shape of the accessory storage part and configured to accommodate at least a part of a cleaning module coupled to the cleaner; and a drawer part disposed in the storage part housing, configured to define at least a part of the storage space, and configured to be extended like a drawer.

6. The cleaner station of claim 5, wherein the dust collecting motor and the drawer part communicate with each other so that air for drying the accessory flows when the dust collecting motor operates, and wherein the dust collecting motor and the storage part housing communicate with each other so that air for drying the cleaning module flows.

7. The cleaner station of claim 5, wherein the station housing has a major axis extending in an upward/downward direction, and the drawer part is configured to be extended in a direction perpendicular to the major axis.

8. The cleaner station of claim 7, wherein the drawer part is configured to be extended laterally or rearward from the station housing when the cleaner is coupled to a front side of the station housing.

9. The cleaner station of claim 5, wherein the storage part housing comprises an air inlet port configured to allow the inside and outside of the storage part housing to communicate with each other, and the air

inlet port is formed in a front surface of the storage part housing.

- 10. A cleaner station, which sucks dust in a dust bin of a cleaner and collects the dust, the cleaner station comprising: 5

- a station housing configured to be coupled to the cleaner and having a major axis extending in an upward/downward direction; and 10
  - an accessory storage part coupled to a lower end of the station housing and having a storage space for storing an accessory of the cleaner or an accessory of the cleaner station, wherein the accessory storage part comprises: 15

- a storage part housing configured to define an external shape of the accessory storage part; and
    - a drawer part disposed in the storage part housing and configured to be extended like a drawer from the storage part housing in a direction perpendicular to the major axis of the station housing. 20

- 11. The cleaner station of claim 10, wherein the accessory storage part further comprises a sterilization unit disposed in the storage part housing and configured to emit ultraviolet rays toward the drawer part. 25

- 12. The cleaner station of claim 10, wherein the accessory storage part further comprises an airflow generation unit disposed in the storage part housing and configured to operate to generate airflow in the drawer part. 30

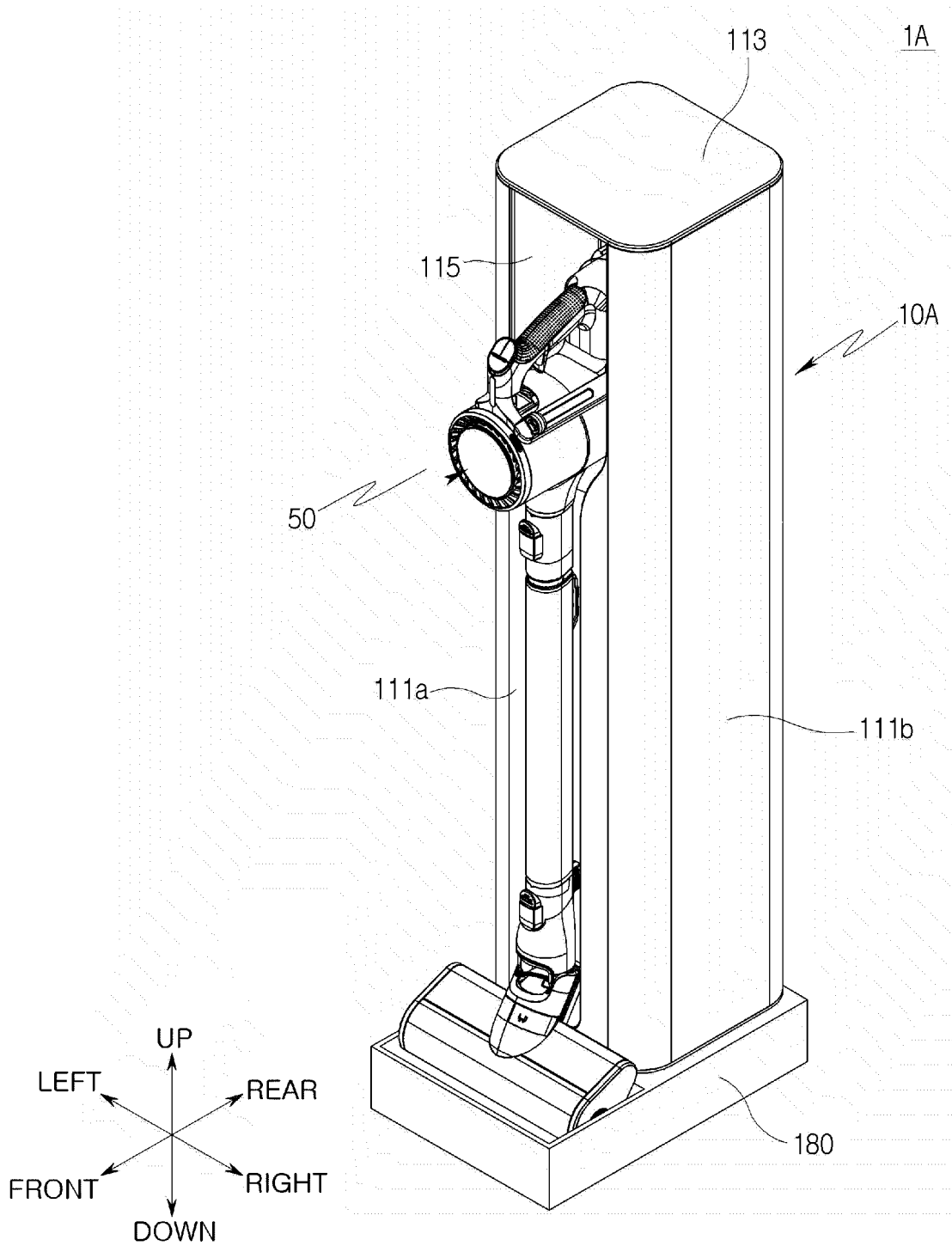
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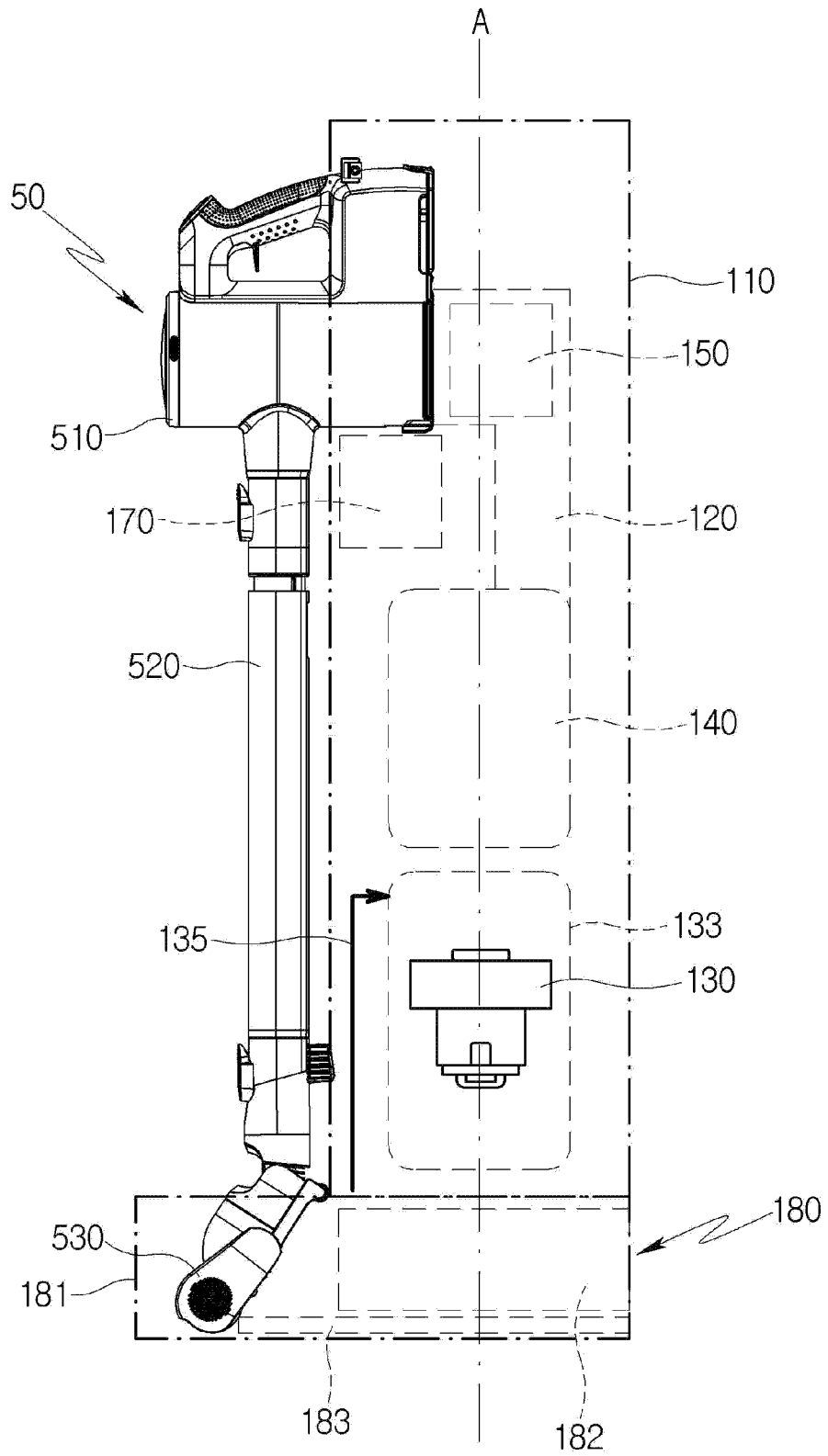
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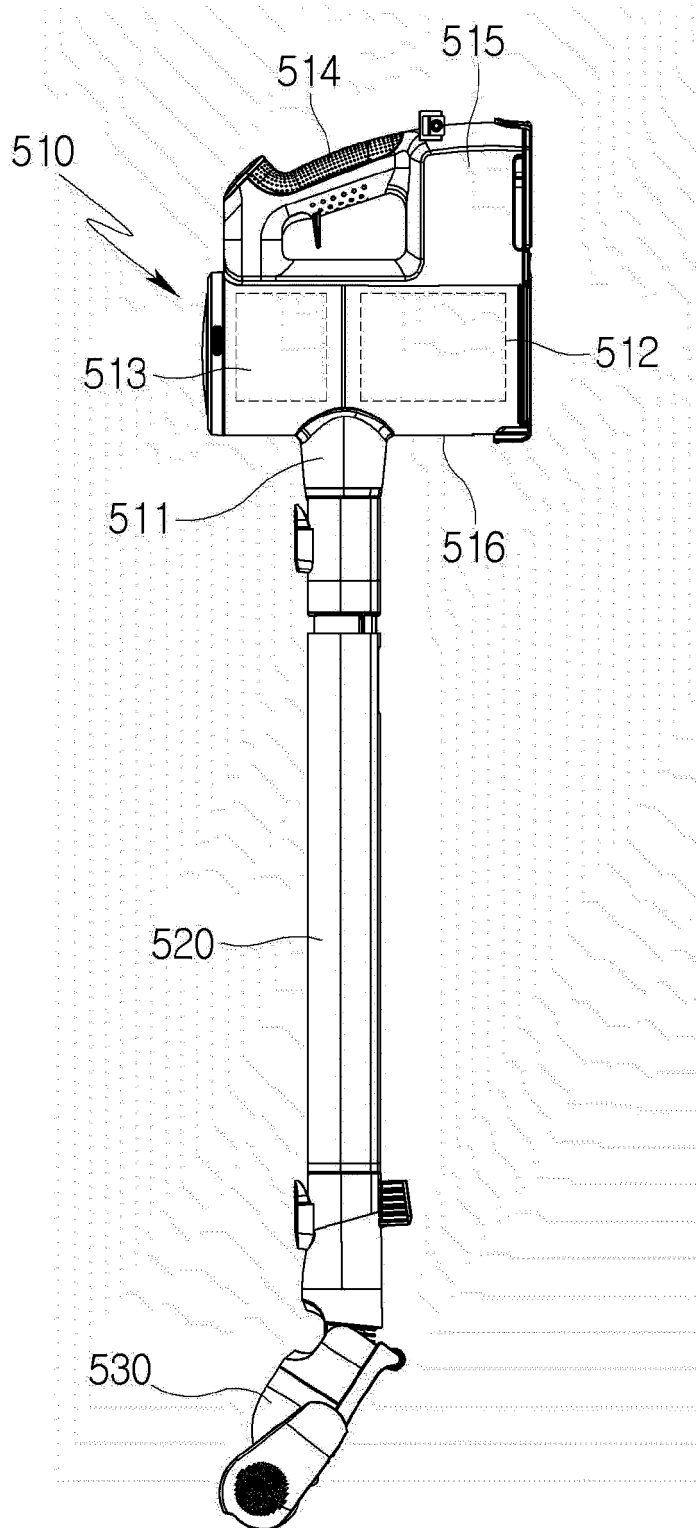
[FIG. 1]



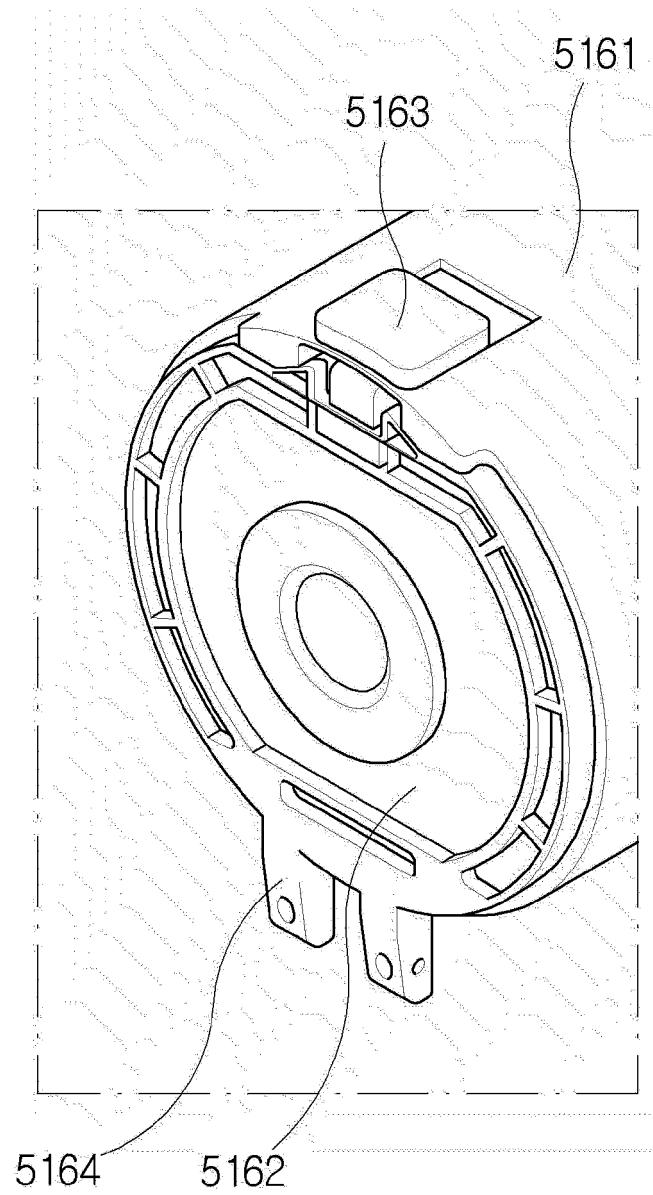
[FIG. 2]



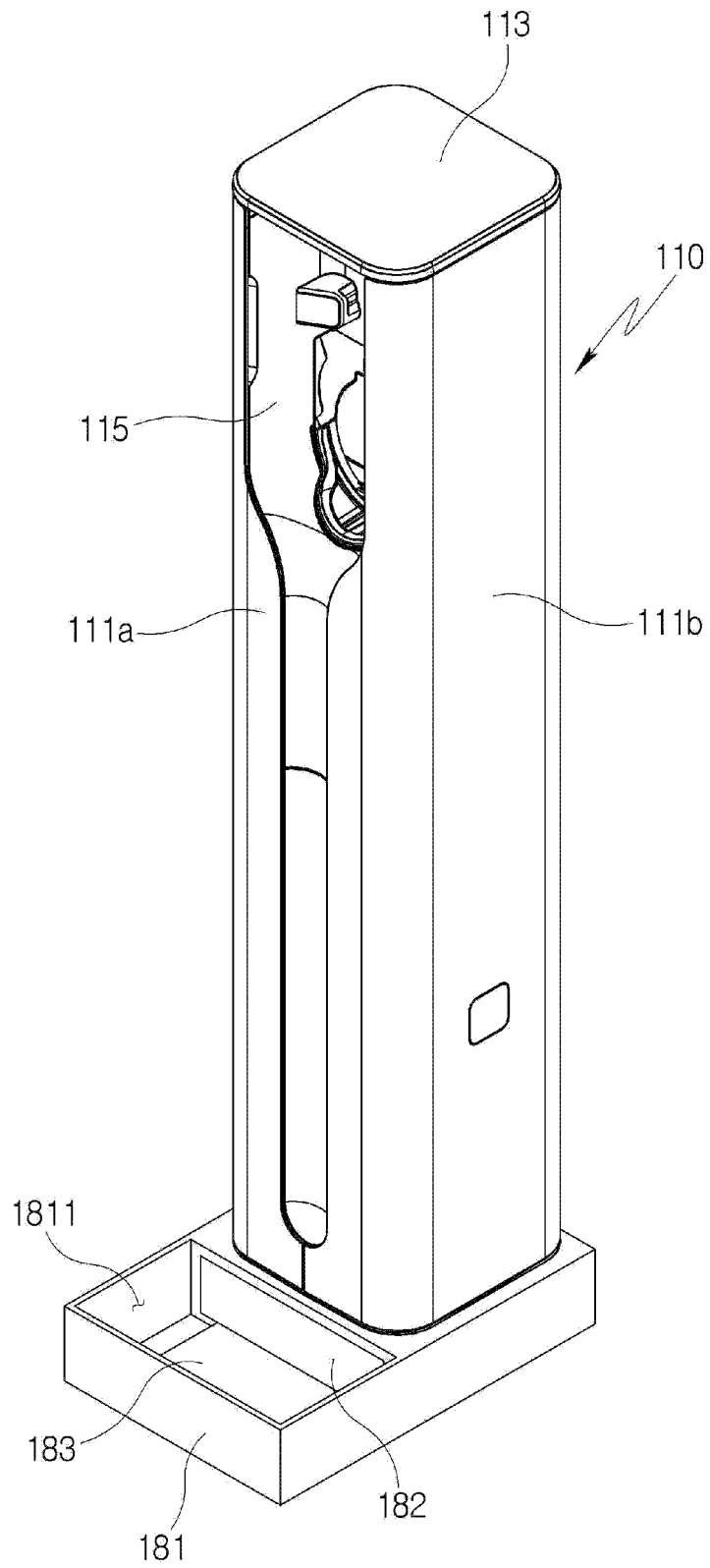
[FIG. 3]



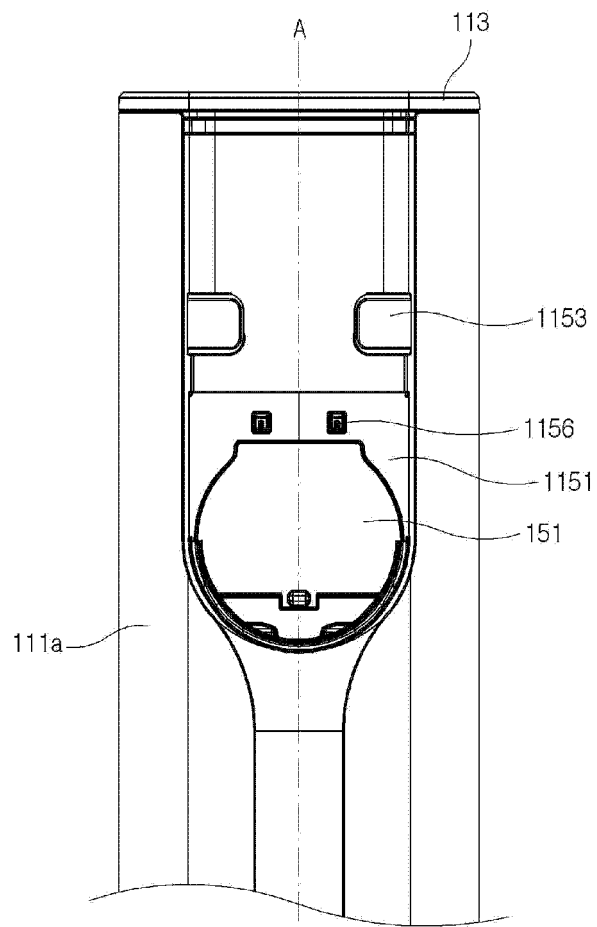
[FIG. 4]



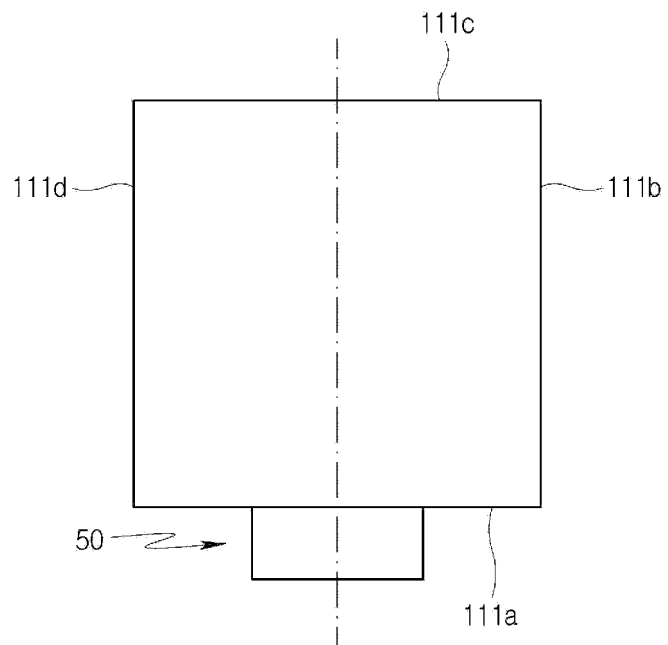
[FIG. 5]



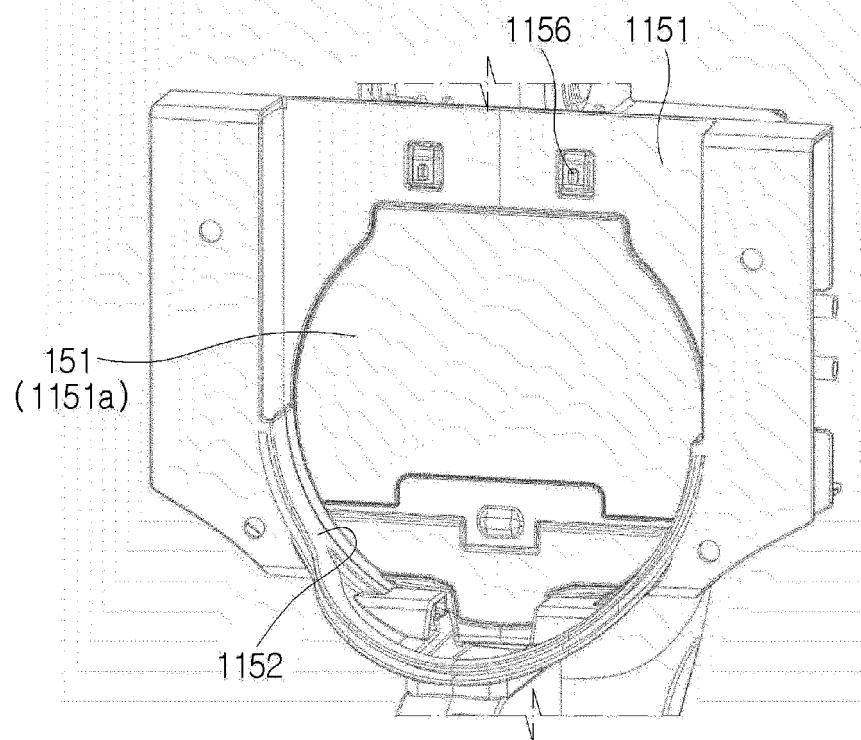
[FIG. 6]



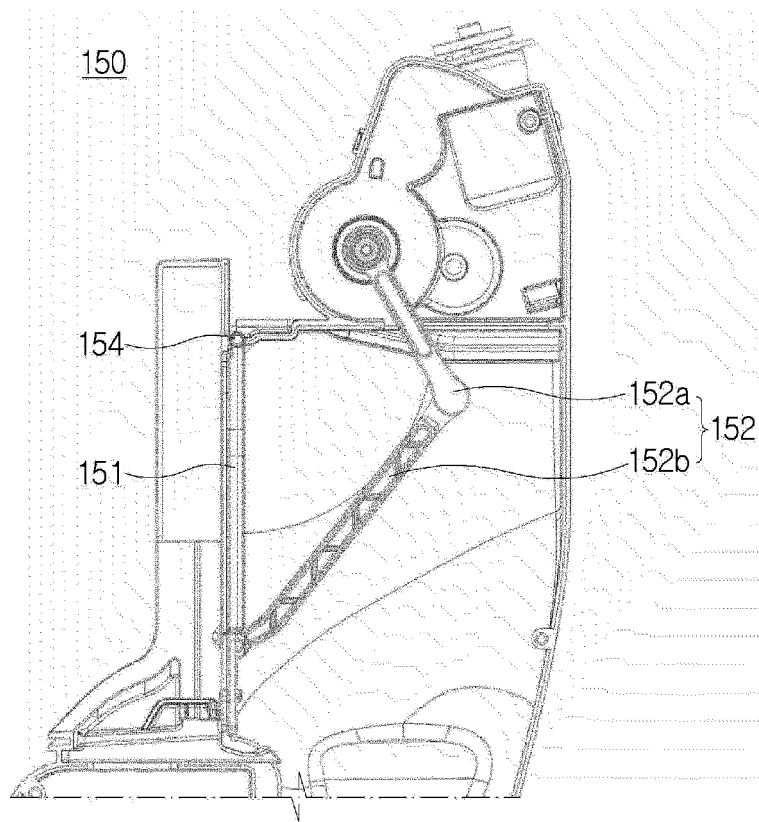
[FIG. 7]



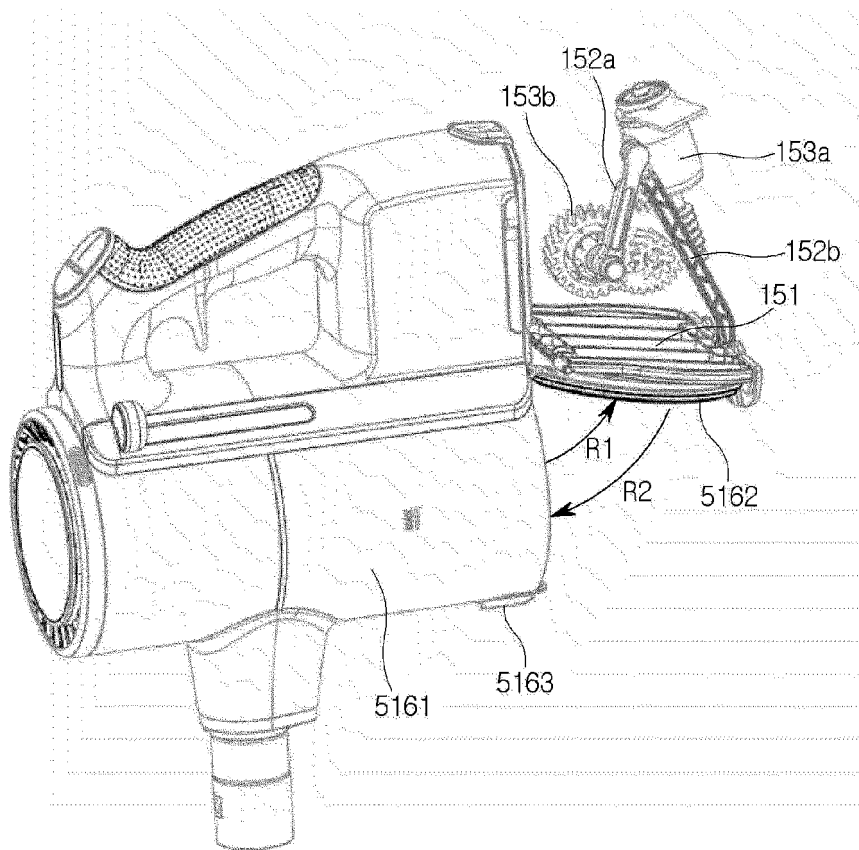
[FIG. 8]



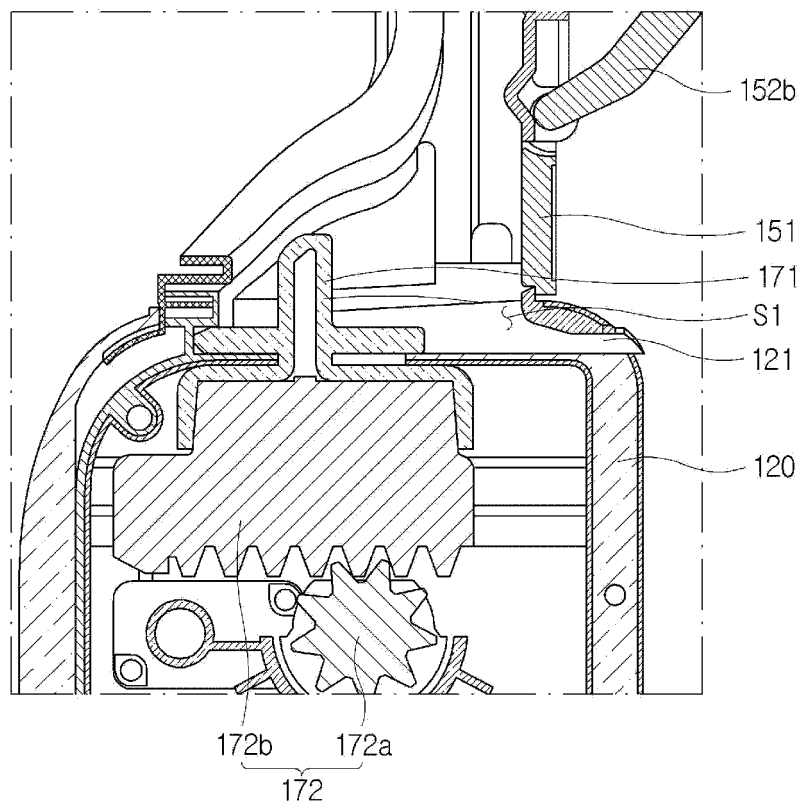
[FIG. 9]



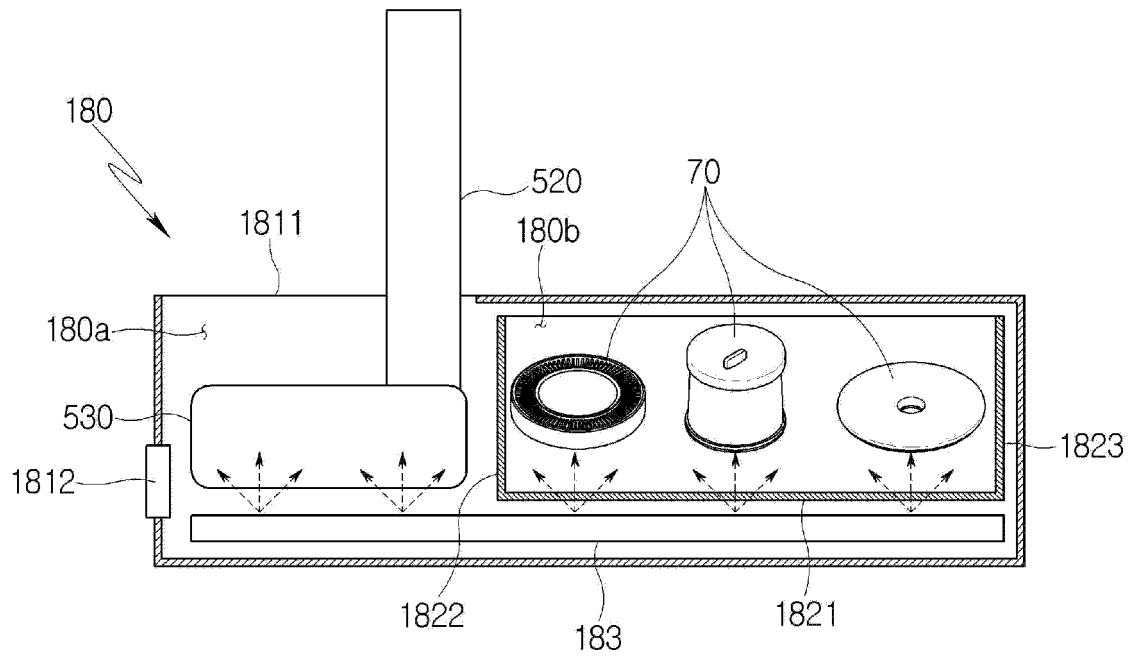
[FIG. 10]



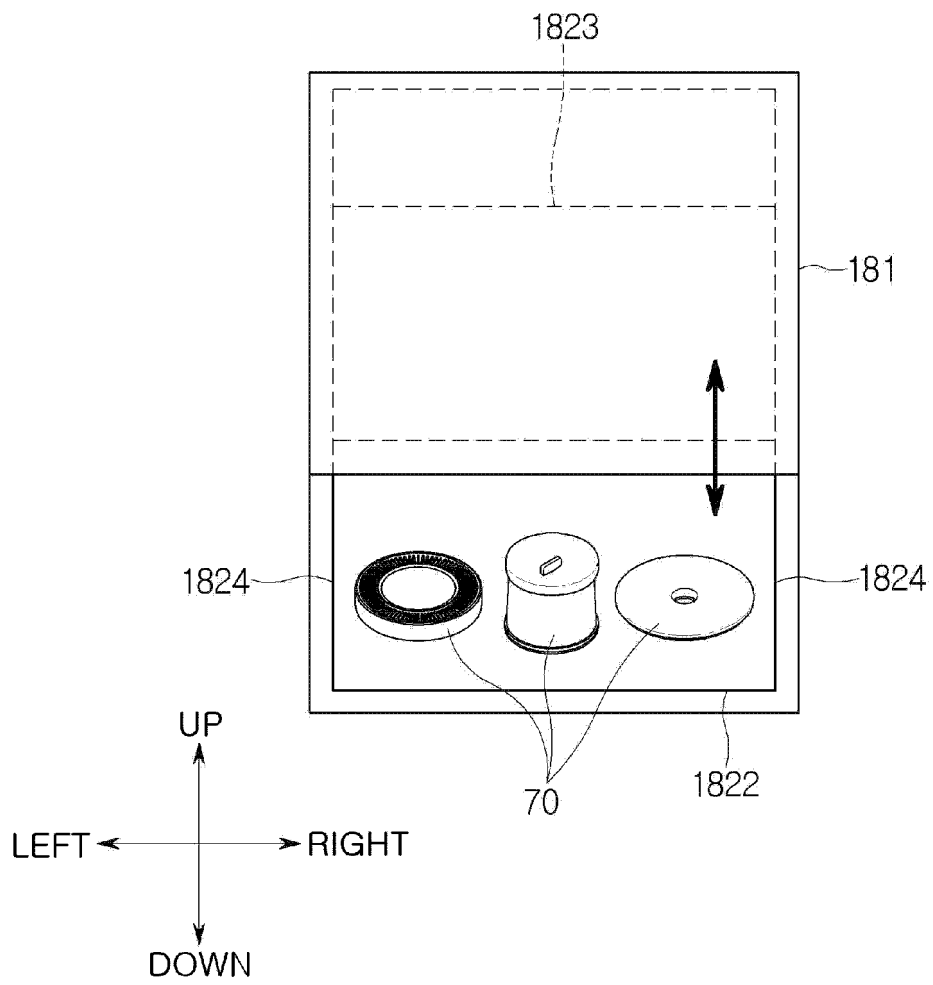
[FIG. 11]



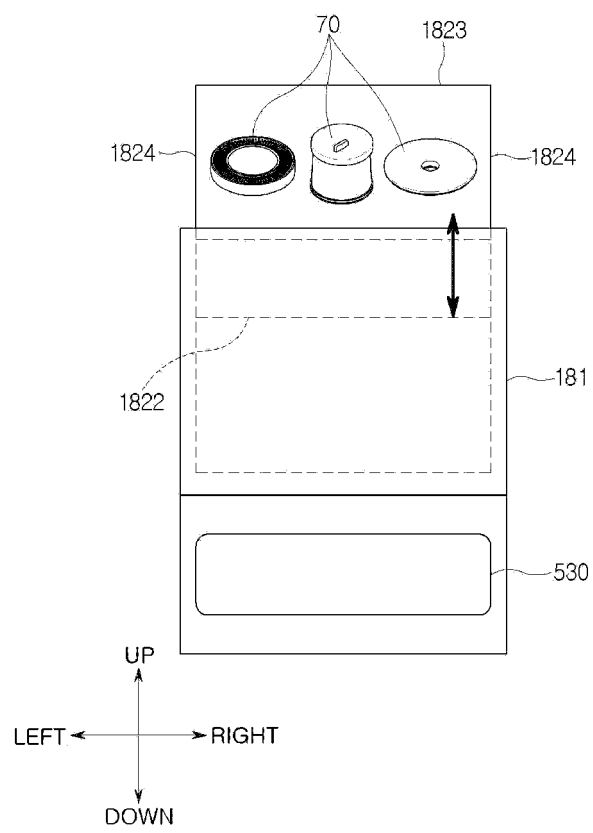
[FIG. 12]



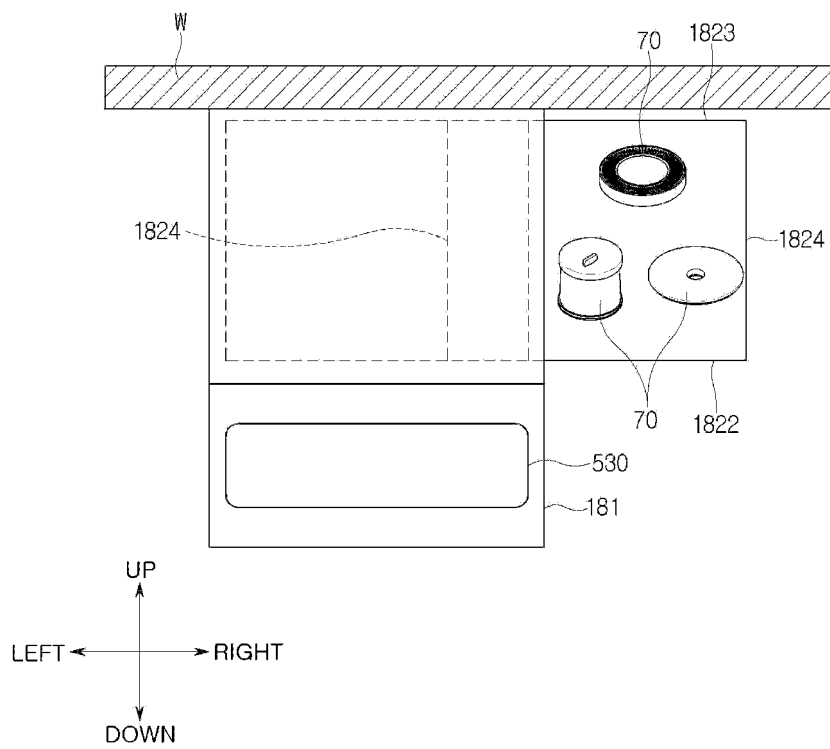
[FIG. 13]



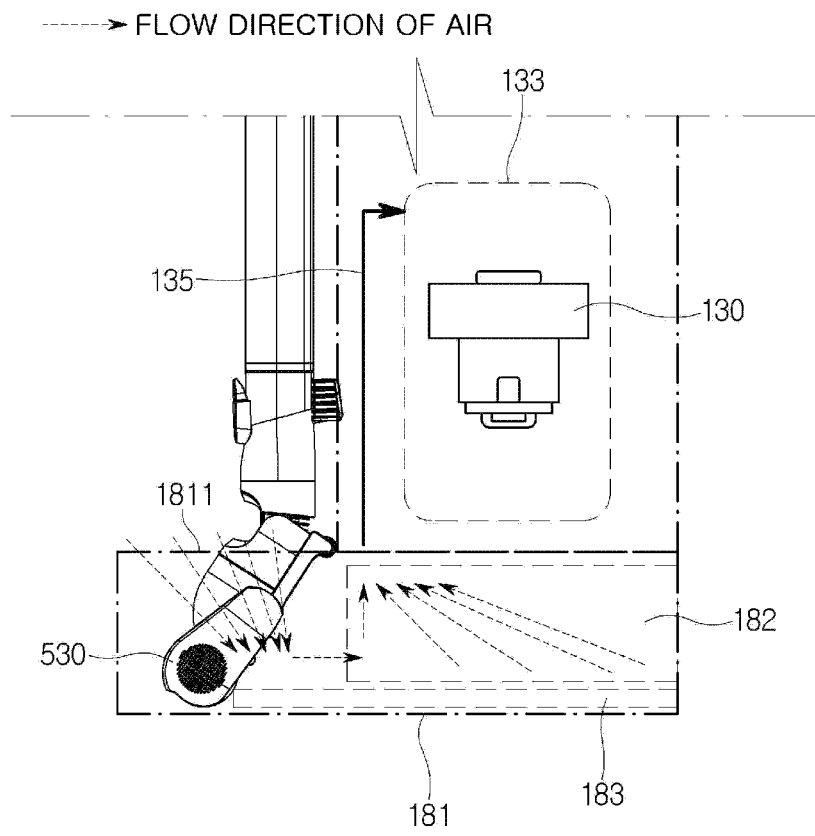
[FIG. 14]



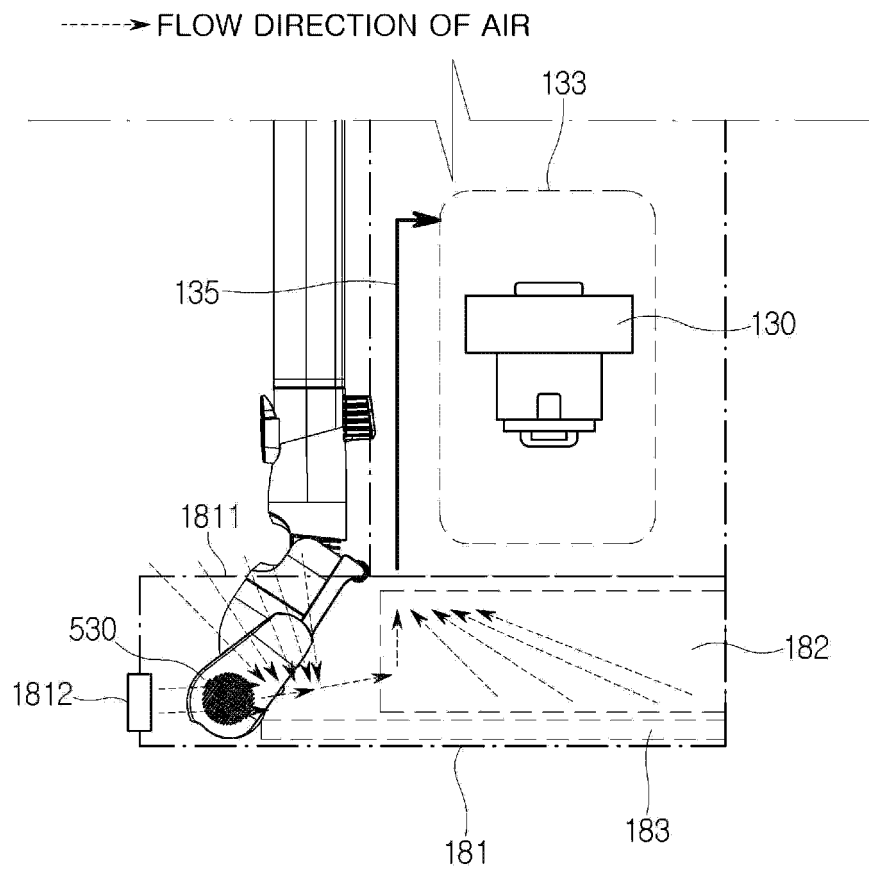
[FIG. 15]



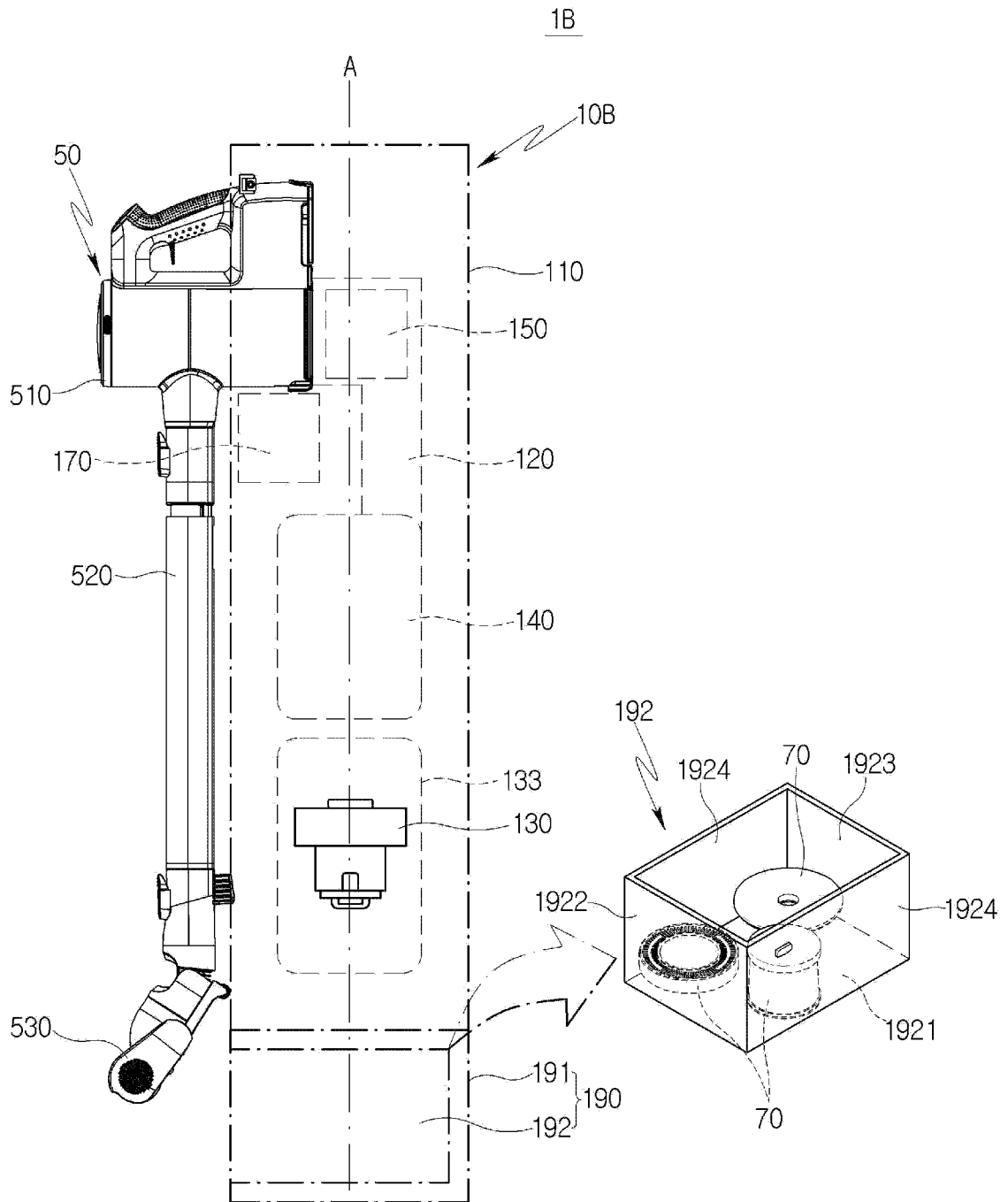
[FIG. 16]



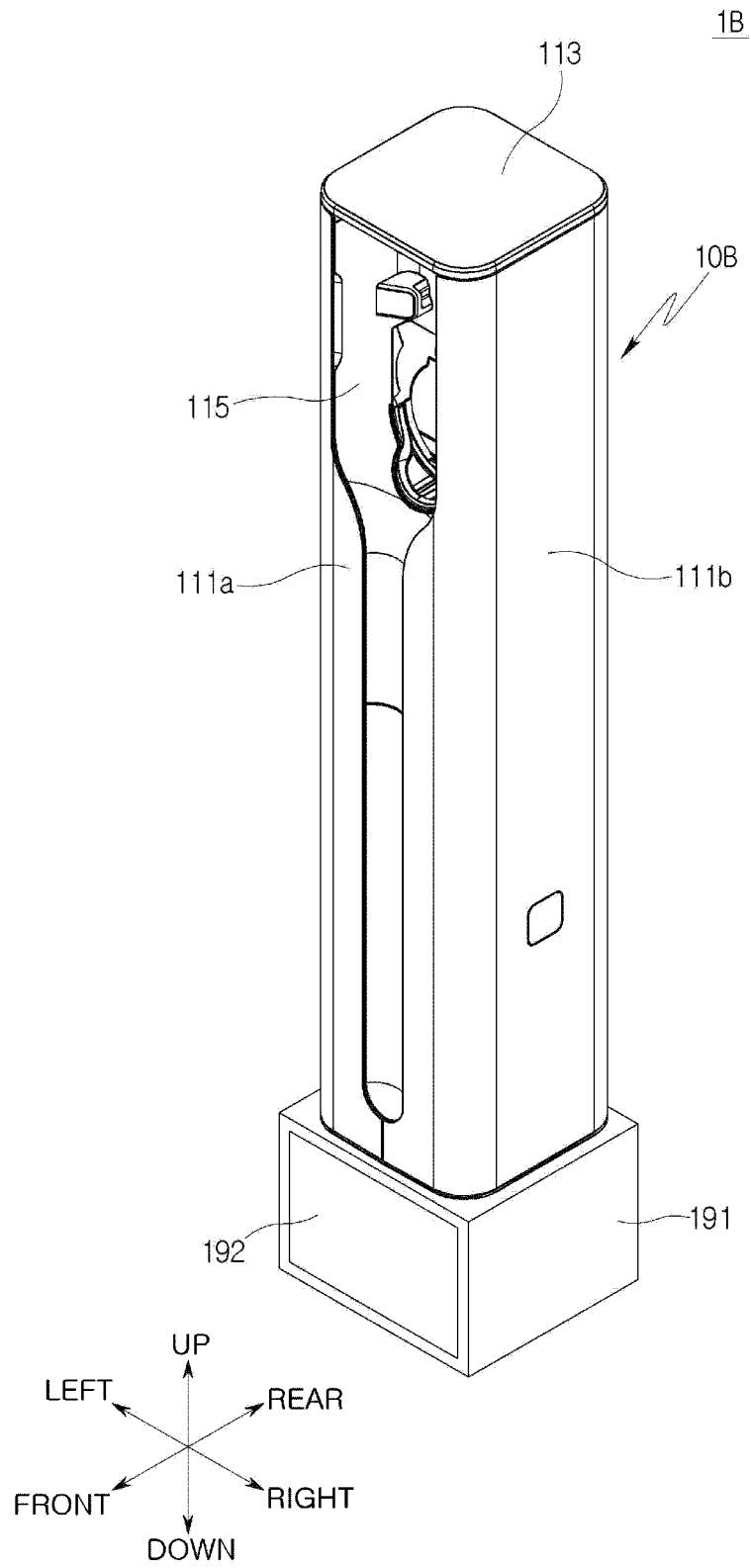
[FIG. 17]



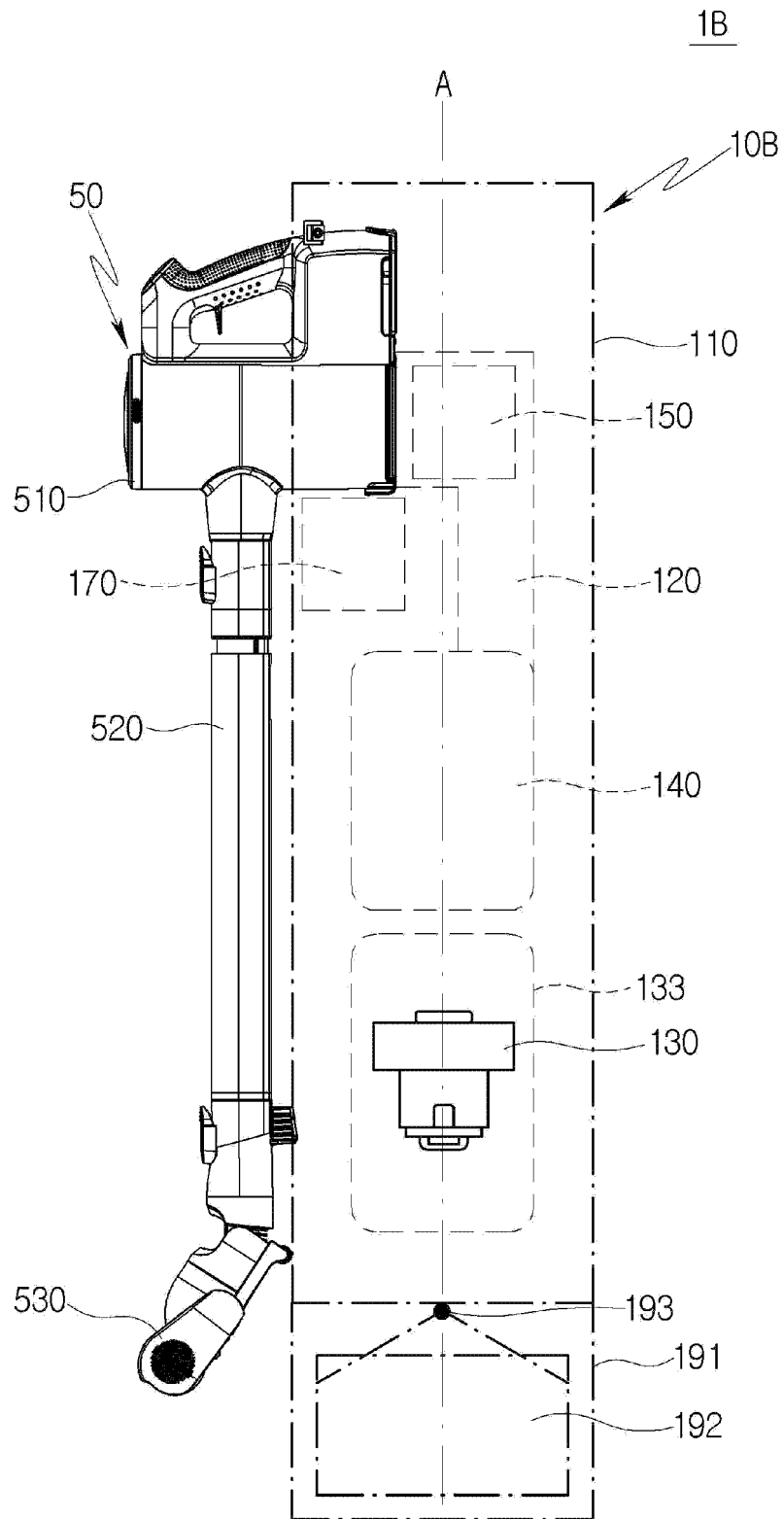
[FIG. 18]



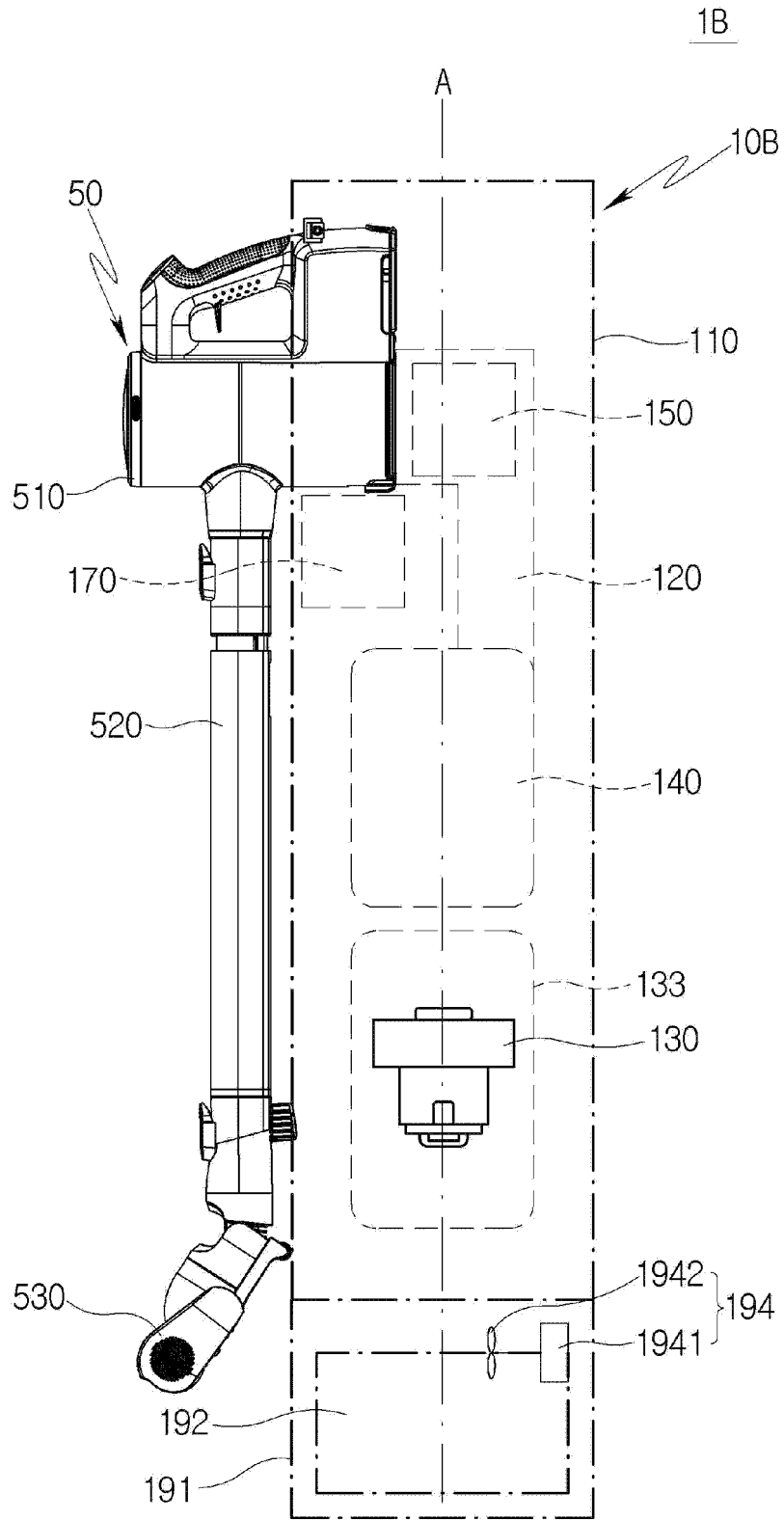
[FIG. 19]



[FIG. 20]



[FIG. 21]



INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/KR2022/008441**

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**A. CLASSIFICATION OF SUBJECT MATTER**  
**A47L 9/28(2006.01)i; A47L 9/00(2006.01)i; A47L 7/00(2006.01)i; A47L 5/24(2006.01)i**  
 According to International Patent Classification (IPC) or to both national classification and IPC

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**B. FIELDS SEARCHED**  
 Minimum documentation searched (classification system followed by classification symbols)  
 A47L 9/28(2006.01); A47L 5/24(2006.01); A47L 5/38(2006.01); A47L 9/00(2006.01); A47L 9/16(2006.01)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 Korean utility models and applications for utility models: IPC as above  
 Japanese utility models and applications for utility models: IPC as above  
 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 eKOMPASS (KIPO internal) & keywords: 청소기(vacuum cleaner), 스테이션(station), 서랍(draw), 부속품(accessory), 틀(tool), 노즐(nozzle), 보관(storage), 살균(sterilization), 자외선(ultraviolet ray)

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2021-0019940 A (LG ELECTRONICS INC.) 23 February 2021 (2021-02-23) See paragraphs [0169]-[0191] and figures 1-2.	1-12
Y	JP 2021-514766 A (DYSON TECHNOLOGY LIMITED) 17 June 2021 (2021-06-17) See paragraph [0026] and figures 1, 3 and 5.	1-12
Y	KR 10-2012-0069840 A (LG ELECTRONICS INC.) 29 June 2012 (2012-06-29) See paragraph [0031], claim 1 and figures 1-4.	2-3,11
A	JP 6764498 B2 (TOSHIBA LIFESTYLE PRODUCTS & SERVICES CORP.) 30 September 2020 (2020-09-30) See paragraphs [0008]-[0024] and [0065]-[0067] and figures 1-2.	1-12
A	JP 2679353 B2 (MATSUSHITA ELECTRIC IND. CO., LTD.) 19 November 1997 (1997-11-19) See claim 1 and figures 1-4.	1-12

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

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 "O" document referring to an oral disclosure, use, exhibition or other means  
 "P" document published prior to the international filing date but later than the priority date claimed  
 "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
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 "&" document member of the same patent family

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Date of the actual completion of the international search <b>21 September 2022</b>	Date of mailing of the international search report <b>21 September 2022</b>
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Name and mailing address of the ISA/KR <b>Korean Intellectual Property Office Government Complex-Daejeon Building 4, 189 Cheongsaro, Seo-gu, Daejeon 35208</b> Facsimile No. +82-42-481-8578	Authorized officer  Telephone No.
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INTERNATIONAL SEARCH REPORT  
Information on patent family members

International application No.  
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Form PCT/ISA/210 (patent family annex) (July 2019)

**REFERENCES CITED IN THE DESCRIPTION**

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- KR 1020210002057 [0009] [0010]