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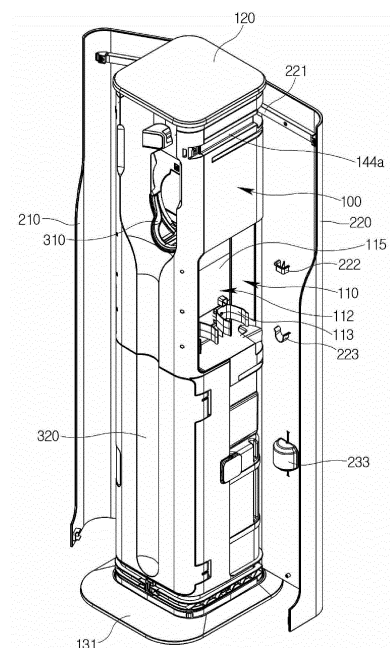
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(54) **VACUUM CLEANER STATION**

(57) The present disclosure relates to a cleaner station that includes a catching device and a receiving space capable of receiving various cleaning modules used in a cleaner. The cleaning station includes: a housing which includes an outer wall surface; a housing cover which is openably and closably coupled to the housing and forms an external appearance; a receiver that receives a cleaning module of the cleaner; and a catching device which is formed to allow an auxiliary suction port of the cleaner to be mounted thereon. The receiver can be separated from the outside by the housing cover, so that the cleaning module is mounted in a space that does not expose the cleaning module to the outside, and the aesthetic impression can be improved. The catching device allows the auxiliary suction port including a wet mop to be mounted on the outside of the cleaner station, so that problems caused by dripping water can be prevented.

[FIG. 2]



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Description

[Technical Field]

[0001] The present disclosure relates to a cleaner station and more particularly to a cleaner station that includes a catching device and a receiving space capable of receiving various cleaning modules used in a cleaner.

[Background Art]

[0002] In general, a cleaner is a home appliance which sucks tiny trash or dust in a way of sucking air by using electricity and fills the trash or dust in a dust bin included in the cleaner product. The cleaner is usually called a vacuum cleaner.

[0003] Such a cleaner can be divided into a manual cleaner which performs cleaning by being moved directly by a user and an automatic cleaner which performs cleaning while travels by itself. The manual cleaner can be divided into a canister vacuum cleaner, an upright vacuum cleaner, a hand vacuum cleaner, and a stick vacuum cleaner, etc., in accordance with the shape thereof.

[0004] Also, recently, a robotic vacuum cleaner is used which performs cleaning by itself without user's operation. The robotic vacuum cleaner automatically cleans an area to be cleaned by sucking foreign substances such as dust from the floor while traveling on its own in the area to be cleaned.

[0005] However, conventional hand vacuum cleaner, stick vacuum cleaner, and robotic vacuum cleaner have a problem that the battery of the cleaner must be frequently charged.

[0006] Meanwhile, there is a conventional device for holding a vacuum cleaner. The vacuum cleaner holding device according to the prior art includes a holder including a first charging terminal provided to be electrically connectable to a vacuum cleaner equipped with a first battery, and includes a second charging terminal provided to be electrically connected to a second battery. In addition, the vacuum cleaner holding device includes a base that receives a first power adapter provided to supply power to the first charging terminal and a second power adapter provided to supply power to the second charging terminal, and a support that connects the holder and the base and has a hollow formed therein.

[0007] However, according to the prior art, the conventional hand vacuum cleaner, stick vacuum cleaner, and robotic vacuum cleaner have problems that the inconvenience for the user to empty the dust bin each time and dust scatters to adversely affect the user's health.

[0008] Also, the prior art has a connection port provided to store an auxiliary suction portion.

[0009] However, according to the prior art, the auxiliary suction portion is exposed to the outside, which deteriorates the aesthetic impression. Additionally, the connection port and the holding device occupy an excessive space.

[0010] Furthermore, when the auxiliary suction portion is provided with a wet mop, there is a problem in that electric leakage may occur due to dripping water.

5 [DISCLOSURE]

[Technical Problem]

[0011] The present disclosure is designed to overcome the problems of a conventional cleaner station described above.

[0012] First, the purpose of the present disclosure is to provide a cleaner station capable of removing the inconvenience for a user to empty the dust bin each time.

15 **[0013]** Second, the purpose of the present disclosure is to provide a cleaner station capable of preventing dust from scattering when the dust bin is emptied.

[0014] Third, the purpose of the present disclosure is to provide a cleaner station capable of allowing a cleaning module used in the cleaner to be mounted in a space that does not expose the cleaning module to the outside.

20 **[0015]** Fourth, the purpose of the present disclosure is to provide a cleaner station capable of allowing an auxiliary suction port including a wet mop to be mounted on the outside of the cleaner station.

[Technical Solution]

[0016] One embodiment is a cleaner station including: a housing which includes an outer wall surface; a housing cover which is openably and closably coupled to the housing and forms an external appearance; a coupling portion which is disposed in the housing and includes a coupling surface to which at least a portion of a cleaner is coupled; a dust collector which is received within the housing, is disposed below the coupling portion, and collects dust within a dust bin of the cleaner; and a dust collection motor which is received within the housing, is disposed below the dust collector, and generates a suction force to suck the dust within the dust bin. The housing includes a receiver that receives a cleaning module of the cleaner. The receiver includes: a receiving surface which is formed to be recessed to have a predetermined level difference in the outer wall surface; and a receiving space which is formed between the receiving surface and the housing cover and is separated from the outside.

[0017] The receiver may be disposed such that a height of the receiver from the ground is less than a height of the coupling portion from the ground and is greater than a height of the dust collector.

[0018] A level difference of the receiving surface with respect to the outer wall surface may be less than a half of the left and right length of the housing.

[0019] The housing cover may be openable and closable to expose at least one side surface of the housing to the outside.

55 **[0020]** The housing cover may include a hinge portion that is disposed on an inner surface thereof and is cou-

pled to the housing.

[0021] The hinger portion may be coupled to a rear side of the housing, and the housing cover may be opened to both sides from a front thereof.

[0022] The receiver may further include a support device that grabs the cleaning module mounted in the receiving space.

[0023] The support device may include: a coupling portion which protrudes from the receiving surface; a contact surface which is connected to the coupling portion on one side thereof; a pair of elastic pieces which is formed to extend from both ends of the contact surface; and an opening which is formed between ends of the pair of elastic pieces and into which the cleaning module is pushed. An open width of the opening may be smaller than a left and right width of the contact surface.

[0024] The pair of elastic pieces may be formed in a curved shape.

[0025] The open width of the opening may be smaller than a diameter of the cleaning module.

[0026] The housing cover may include a catching device which is formed to allow an auxiliary suction port of the cleaner to be mounted thereon. The catching device may include: a rotating plate; and a nozzle holder which is formed to protrude from one side of the rotating plate. A user is able to selectively expose the nozzle holder to the outside.

[0027] The bottom surface may include a ground support portion which is formed to extend along a circumference thereof by a predetermined length. In a state where the auxiliary suction port is mounted on the nozzle holder, an imaginary extension line formed toward the ground may come into contact with the ground at the outside of the ground support portion.

[0028] The nozzle holder may be formed to extend such that a protruding height in the direction of gravity becomes shorter.

[0029] The housing cover may include a first cover and a second cover which are disposed on both sides thereof, respectively. The second cover may include a cleaning brush hanger which is formed to protrude from an inner surface thereof.

[0030] The second cover may further include a cleaning brush support which is spaced apart downwardly from the cleaning brush hanger by a predetermined distance.

[0031] The receiving surface may have at least one groove formed therein, in correspondence with a shape of the cleaning module.

[0032] The receiving space may include a support protrusion which comes into contact with the cleaning module on an inner surface thereof.

[0033] The one or more support protrusions may be provided and disposed above and below the support device, respectively.

[0034] The coupling portion may further include an extension tube lead-in groove which is formed to extend up and down in response to an extension tube of the cleaner. The housing cover may be formed to correspond to the

extension tube lead-in groove and come into contact with the extension tube.

[Advantageous Effect]

[0035] According to the cleaner station according to the embodiments of the present disclosure described above has the following effects.

[0036] First, it is possible to remove the inconvenience for a user to empty the dust bin each time.

[0037] Second, when the dust bin is emptied, it is possible to prevent dust from scattering by sucking the dust in the dust bin into the inside of the station.

[0038] Third, it is possible to allow a cleaning module used in the cleaner to be mounted in a space that does not expose the cleaning module to the outside, so that the aesthetic impression can be improved.

[0039] Fourth, the auxiliary suction port including a wet mop is mounted on the outside of the cleaner station, so that problems caused by dripping water can be prevented.

[Description of Drawings]

[0040]

FIG. 1 is a perspective view of a dust removal system composed of a cleaner station, a first cleaner, and a second cleaner according to an embodiment of the present disclosure;

FIG. 1 is a perspective view disclosing the appearance of the cleaner station according to the embodiment of the present disclosure;

FIGS. 2 and 3 are perspective views of the appearance where a cover part of the cleaner station according to the embodiment of the present disclosure is opened, as viewed from different directions;

FIG. 4 is a perspective view showing a state where one side of a housing cover according to the embodiment of the present disclosure is disassembled;

FIGS. 5 and 6 are enlarged partial perspective views of the structure of a receiver according to a first embodiment of the present disclosure;

FIGS. 7A and 7B are a partial perspective view and a combined view which enlarge the structure where a first cleaning module is coupled to the receiver according to the first embodiment of the present disclosure;

FIG. 8 is an enlarged partial perspective view of the structure of a receiver according to a second embodiment of the present disclosure;

FIGS. 9A and 9B are a partial perspective view and a combined view which enlarge the structure where a second and third cleaning modules and a cleaning brush are coupled to the receiver according to the second embodiment of the present disclosure;

FIG. 10 is an enlarged perspective view of a support device according to the embodiment of the present

disclosure;

FIG. 11 is a perspective view disclosing the appearance where an auxiliary suction port is mounted on the cleaner station according to the embodiment of the present disclosure;

FIGS. 12 and 13 are enlarged partial perspective views of a state where a catching device of the cleaner station according to the embodiment of the present disclosure is opened and closed;

FIG. 14 is an enlarged partial perspective view of a state where the auxiliary suction port is mounted on the catching device of the cleaner station according to the embodiment of the present disclosure;

FIG. 15 is an enlarged partial perspective view of a part of the housing cover of the cleaner station according to the embodiment of the present disclosure;

FIG. 16 is a perspective view showing the catching device of the cleaner station according to the embodiment of the present disclosure;

FIG. 17 is a perspective view showing the appearance of the first cleaning module that is mounted on the receiver according to the first embodiment of the present disclosure;

FIG. 18 is a perspective view showing the appearance of the second cleaning module that is mounted on the receiver according to the second embodiment of the present disclosure;

FIG. 19 is a perspective view showing the appearance of the third cleaning module that is mounted on the receiver according to the second embodiment of the present disclosure; and

FIG. 20 shows a cleaning brush that is mounted on a cover according to the second embodiment of the present disclosure.

[Mode for Invention]

[0041] Hereinafter, preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings.

[0042] As the present invention can have various embodiments as well as can be diversely changed, specific embodiments will be illustrated in the drawings and described in detail. While the present invention is not limited to particular embodiments, all modification, equivalents and substitutes included in the spirit and scope of the present invention are understood to be included therein.

[0043] In the description of the present invention, while terms such as the first and the second, etc., can be used to describe various components, the components may not be limited by the terms mentioned above. The terms are used only for distinguishing between one component and other components. For example, the first component may be designated as the second component without departing from the scope of rights of the invention. Similarly, the second component may be designated as the first component.

[0044] The term of "and/or" includes a combination or

one of a plurality of related items mentioned.

[0045] In the case where a component is referred to as being "connected" or "accessed" to another component, it should be understood that not only the component is directly connected or accessed to the other component, but also there may exist another component between them. Meanwhile, in the case where a component is referred to as being "directly connected" or "directly accessed" to another component, it should be understood that there is no component therebetween.

[0046] Terms used in the present specification are provided for description of only specific embodiments of the present invention, and not intended to be limiting. An expression of a singular form may include the expression of plural form thereof unless otherwise explicitly mentioned in the context.

[0047] In the present specification, it should be understood that the term "include" or "comprise" and the like is intended to specify characteristics, numbers, steps, operations, components, parts or any combination thereof which are mentioned in the specification, and intended not to previously exclude the possibility of existence or addition of at least one another characteristics.

[0048] In the present disclosure, the meaning of "couple" can be divided into physical coupling, electrical coupling, and fluid coupling. The physical coupling refers to a state in which the cleaner is fixed to the cleaner station and can be moved integrally. The electrical coupling refers to a state in which a current flows or signals can be transmitted and received between the cleaner and the cleaner station. The fluid coupling refers to a state in which a flow path within the cleaner communicates with a flow path within the cleaner station and fluid can flow.

[0049] Unless otherwise defined, all terms used herein including technical and scientific terms have the same meaning as commonly understood by one of ordinary skill in the art to which the present invention belongs. Terms, for example, commonly used terms defined in the dictionary, are to be construed to have exactly the same meaning as that of related technology in the context. As long as terms are not clearly defined in the present application, the terms should not be ideally or excessively construed as formal meaning.

[0050] Also, the embodiment is provided for giving those skilled in the art more complete description. Therefore, the shapes and sizes and the like of components of the drawings may be exaggerated for clarity of the description.

[0051] FIG. 1 shows the appearance of a cleaner station according to the embodiment of the present disclosure. FIGS. 2 and 3 show the appearance where a cover part of the cleaner station according to the embodiment of the present disclosure is opened.

[0052] First, referring to FIG. 1, a basic configuration of the cleaner station 1 according to the embodiment of the present disclosure will be described.

[0053] The cleaner station 1 according to the embodiment of the present disclosure may be coupled to clean-

ers 2 and 3 (not shown). Here, the cleaners 2 and 3 may include the first cleaner 2 and the second cleaner 3. Meanwhile, this embodiment may be implemented without some of the components and does not exclude additional components.

[0054] The first cleaner 2 may be coupled to one side of the cleaner station 1. Specifically, a main body (not shown) of the first cleaner 2 may be coupled to the side of the cleaner station 1. The second cleaner 3 may be coupled to a bottom of the cleaner station 1.

[0055] The cleaner station 1 may remove dust from a dust bin (not shown) of the first cleaner 2. Also, the cleaner station 1 may remove dust from a dust bin (not shown) of the second cleaner 3.

[0056] Hereinafter, configurations of the first cleaner 2 and the second cleaner 3 will be described in order to help understand the functions of the cleaner station 1 according to the embodiment of the present disclosure.

[0057] The first cleaner 2 may refer to a cleaner manually operated by a user. For example, the first cleaner 2 may mean a hand vacuum cleaner or a stick vacuum cleaner.

[0058] The first cleaner 2 may be mounted on the cleaner station 1. The first cleaner 2 may be supported by the cleaner station 1. The first cleaner 2 may be coupled to the cleaner station 1.

[0059] The first cleaner 2 may include a main body. The main body may include basic components (not shown) and additionally provided components. The basic component includes a body housing, a suction portion, a dust separator, a suction motor, a handle, an extension tube, an operation unit, and a battery. Hereinafter, the basic components of the first cleaner 2 will be described.

[0060] The body housing may form the exterior of the first cleaner 2. The body housing may provide a space capable of receiving the components such as the suction motor, a filter therein. The body housing may be formed in a shape similar to a cylinder.

[0061] The suction portion may protrude outward from the body housing. For example, the suction portion may have a cylindrical shape with an open interior. The suction portion may communicate with the extension tube. The suction portion may provide a flow path through which dust-containing air can flow (hereinafter, may be referred to as a "suction flow path").

[0062] The dust separator may communicate with the suction portion. The dust separator may separate dust sucked into the inside through the suction portion. The dust separator may communicate with the dust bin.

[0063] The dust separator may include a cyclone capable of separating dust by cyclone flow from air passing through the inside. Accordingly, the air and dust sucked through the suction portion flow spirally along the inner peripheral surface of the dust separator. Also, cyclone flow may occur with respect to the central axis of the dust separator.

[0064] The suction motor may generate a suction force for sucking air. The suction motor may be received within

the body housing. The suction motor may generate the suction force by rotation.

[0065] The user may grip the handle to move the cleaner to a destination area. The handle may be disposed at the rear of the suction motor. For example, the handle may be formed in a shape similar to a cylinder. Alternatively, the handle may be formed to have an approximately curved cylindrical shape. The handle may be disposed at a predetermined angle with the body housing, the suction motor, or the dust separator.

[0066] The operating unit may be disposed on the handle. The operating unit may be disposed on an inclined surface formed in a top area of the handle. The user may input an operation command or a stop command of the first cleaner 2 through the operation unit.

[0067] The first cleaner 2 may include the dust bin. The dust bin may communicate with the dust separator. The dust bin may store the dust separated by the dust separator.

[0068] The first cleaner 2 may include a battery housing. A battery may be received in the battery housing. The battery housing may be disposed below the handle. For example, the battery housing may have a hexahedral shape with an open bottom. A rear surface of the battery housing may be connected to the handle.

[0069] The battery housing may include a receiving portion that is opened downward. The battery may be attachable to and detachable from the receiving portion of the battery housing.

[0070] The first cleaner 2 may include a battery. The battery may supply power to the suction motor of the first cleaner 2.

[0071] The battery may be separably coupled to the first cleaner 2. The battery may be separably coupled to the battery housing. For example, the battery may be inserted from below the battery housing to the inside of the battery housing.

[0072] Unlike this, the battery may be integrally provided within the battery housing. Here, the bottom surface of the battery is not exposed to the outside.

[0073] The first cleaner 2 may include the extension tube. The extension tube may communicate with a cleaning module 20. The extension tube may communicate with the main body. The extension tube may communicate with the suction portion of the main body. The extension tube may be formed in a long cylindrical shape.

[0074] The main body may be connected to the extension tube. The main body may be connected to the cleaning module 20 through the extension tube. The main body may generate a suction force by the suction motor and may provide the suction force to the cleaning module 20 through the extension tube. External dust may be introduced into the main body through the cleaning module 20 and the extension tube.

[0075] The first cleaner 2 may include the cleaning module 20. The cleaning module 20 may communicate with the main body. Accordingly, external air may be introduced into the main body of the first cleaner 2 from

the cleaning module 20 by the suction force generated in the main body of the first cleaner 2.

[0076] Dust in the dust bin of the first cleaner 2 may be collected to a dust collector 400 of the cleaner station 1 by gravity and a suction force of a dust collection motor 510. Through this, since the dust in the dust bin can be removed without a separate operation of the user, convenience for users can be provided. In addition, it is possible to remove the inconvenience for the user to empty the dust bin each time. Also, the dust can be prevented from scattering during the emptying of the dust bin.

[0077] The first cleaner 2 may be coupled to one side of a housing 100. Specifically, the main body of the first cleaner 2 may be mounted on a coupling portion 300. More specifically, the dust bin and the battery housing of the first cleaner 2 may be coupled to a coupling surface 310. Also, an extension tube of the first cleaner 2 may be coupled to an extension tube lead-in groove 320.

[0078] A dust removal system 10 may include the second cleaner 3. The second cleaner 3 may mean a robotic vacuum cleaner. The second cleaner 3 sucks foreign substances such as dust, etc., on the floor while traveling by itself in an area to be cleaned, so that the area to be cleaned can be automatically cleaned. The second cleaner 3 may include a distance sensor that detects a distance to an obstacle, such as furniture, office supplies, or walls, etc., installed in the cleaning area, a left wheel, and a right wheel which are for allowing the robotic cleaner to move. The second cleaner 3 may be coupled to the cleaner station 1. Dust within the second cleaner 3 may be collected by the dust collector 400 through a second flow path (not shown).

[0079] The first cleaner 2 and the second cleaner 3 may be disposed in the cleaner station 1. The first cleaner 2 may be coupled to the side of the cleaner station 1. Specifically, the main body of the first cleaner 2 may be coupled to the side of the cleaner station 1. The second cleaner 3 may be coupled to the bottom of the cleaner station 1. The cleaner station 1 may remove dust from a dust bin (not shown) of the first cleaner 2. The cleaner station 1 may remove dust from a dust bin (not shown) of the second cleaner 3.

[0080] The cleaner station 1 may include the housing 100. The housing 100 may form the exterior of the cleaner station 1. Specifically, the housing 100 may be formed in a column shape including at least one outer wall surface. For example, the housing 100 may be formed in a shape similar to a quadrangular column.

[0081] The housing 100 may have a space capable of receiving the dust collector 400 that stores dust therein and a dust suction module 500 that generates a flow force for collecting dust to the dust collector 400.

[0082] The housing 100 may include a top surface 120, a bottom surface 130 and an outer wall surface 140.

[0083] The top surface 120 may define the uppermost part of the housing 100. The top surface 120 may separate the interior space of the housing 100 from the outside in the uppermost part.

[0084] The top surface 120 may include a display panel 121. The display panel 121 may display, to the outside, the operating states of the cleaner station 1, whether or not the cleaners 2 and 3 are coupled, the empty states of the dust bins of the cleaners 2 and 3, a replacement signal for the dust collector 400 of the cleaner station 1, and the state of charge of the battery, etc. Through this, the user is able to intuitively grasp the states such as process conditions, remaining time or the like.

[0085] Also, the display panel 121 may display a cleaning area and a destination area of the second cleaner 3 in association with a controller (not shown).

[0086] The bottom surface 130 may support the lower portion in the gravity direction of the dust suction module 500. That is, the bottom surface 130 may support the lower portion of the dust collection motor 510 of the dust suction module 500.

[0087] Here, the bottom surface 130 may be placed toward the ground. The bottom surface 130 can be disposed to be inclined at a predetermined angle to the ground as well as can be placed parallel to the ground. With such a configuration, the bottom surface is able to stably support the dust collection motor 510, and is able to balance the overall weight even when the first cleaner 2 is coupled.

[0088] Meanwhile, according to the embodiment, in order to prevent the cleaner station 1 from falling over and to maintain balance, the bottom surface 130 may further include a ground support portion 131 that increases an area in contact with the ground. For example, the ground support portion 131 may be in the form of a plate extending from the bottom surface 130, and one or more frames may protrude and extend from the bottom surface 130 in the direction of the ground. Here, it is preferable that the ground support portion 131 be arranged axisymmetrically in order to maintain left-right balance and front-rear balance with respect to the front side on which the first cleaner 2 is mounted.

[0089] The outer wall surface 140 may mean a surface formed in the direction of gravity, and may mean a surface connected to the bottom surface 130. For example, the outer wall surface 140 may mean a surface connected perpendicular to the bottom surface 130. In another embodiment, it is possible that the outer wall surface 140 is disposed to be inclined at a predetermined angle with the bottom surface 130.

[0090] The outer wall surface 140 may include at least one surface. For example, the outer wall surface 140 may include a first outer wall surface 141, a second outer wall surface 142, a third outer wall surface 143, and a fourth outer wall surface 144.

[0091] Here, in this embodiment, the first outer wall surface 141 may be disposed on the front side of the cleaner station 1. Here, the front side may refer to a surface to which the first cleaner 2 is coupled. Accordingly, the first outer wall surface 141 may form the exterior of the front side of the cleaner station 1.

[0092] Meanwhile, the direction is defined as follows

for understanding the present embodiment. In the present embodiment, the direction may be defined in the state where the first cleaner 2 is mounted on the cleaner station 1.

[0093] An outer surface of the cleaner station 1 through which the main body of the first cleaner 2 passes in the state where the first cleaner 2 is mounted on the cleaner station 1 may be referred to as a front side. Therefore, the front side may refer to a direction in which the first outer wall surface 141 is formed based on the interior space of the cleaner station 1.

[0094] Further, when the first cleaner 2 is mounted on the cleaner station 1, a direction in which at least a portion of the first cleaner 2 is exposed to the outside of the cleaner station 1 may be referred to as a front.

[0095] A surface facing the front side with respect to the interior space of the housing 100 and the coupling portion 300 may be referred to as a rear surface of the cleaner station 1. Accordingly, the rear surface may refer to a direction in which the second outer wall surface 142 is formed based on the interior space of the cleaner station 1.

[0096] Also, a surface on the left when the front is viewed with reference to the interior space of the housing 100 may be referred to as a left surface, and a surface on the right may be referred to as a right surface. Accordingly, the left surface may mean a direction in which the third outer wall surface 143 is formed, and the right surface may mean a direction in which the fourth outer wall surface 144 is formed.

[0097] The first outer wall surface 141 may be formed not only in a flat shape, but also in a curved shape as a whole, or may be formed to include a partial curved surface.

[0098] The first outer wall surface 141 may have an appearance corresponding to the shape of the first cleaner 2. Specifically, the coupling portion 300 may be disposed on the first outer wall surface 141. With this configuration, the first cleaner 2 may be coupled to the cleaner station 1 and supported by the cleaner station 1. The coupling portion 300 may refer to an open space of the first outer wall surface 141. When the first outer wall surface 141 is recessed into the interior space by a predetermined depth in correspondence with the shape of the first cleaner 2, the coupling portion 300 may refer to the correspondingly recessed portion.

[0099] On the other hand, it is also possible to add a structure for mounting various types of cleaning modules 20 used in the first cleaner 2 to the first outer wall surface 141. As will be described later, the embodiment of the present disclosure teaches that a receiver 110 in which the cleaning module 20 can be received is formed on both sides. Additionally, various modified configurations of the receiver 110 may be arranged on the first outer wall surface 141.

[0100] Also, according to the embodiment, a structure to which the second cleaner 3 can be coupled may be added to the first outer wall surface 141. Accordingly, a

structure corresponding to the shape of the second cleaner 3 may be added to the first outer wall surface 141.

[0101] Also, a cleaner bottom plate (not shown) to which a bottom surface of the second cleaner 3 can be coupled may be additionally coupled to the first outer wall surface 141. Meanwhile, according to another embodiment, it is possible that the cleaner bottom plate (not shown) is formed to be connected to the bottom surface 130.

[0102] In the embodiment, the second outer wall surface 142 may face the first outer wall surface 141. That is, the second outer wall surface 142 may be disposed on the rear surface of the cleaner station 1. Here, the rear surface may be a surface facing the surface to which the first cleaner 2 or the second cleaner 3 is coupled. Accordingly, the second outer wall surface 142 may form the exterior of the rear surface of the cleaner station 1.

[0103] For example, the second outer wall surface 142 may be formed in a planar shape. With this configuration, the cleaner station 1 can be brought into close contact with an indoor wall and can be stably supported.

[0104] As another example, a structure for mounting various types of cleaning modules 290 used in the first cleaner 2 can be added to the second outer wall surface 142.

[0105] Also, a structure to which the second cleaner 3 can be coupled may be added to the second outer wall surface 142. Accordingly, a structure corresponding to the shape of the second cleaner 3 may be added to the second outer wall surface 142.

[0106] Also, a cleaner bottom plate (not shown) to which the bottom surface of the second cleaner 3 can be coupled may be additionally coupled to the second outer wall surface 142. Meanwhile, according to another embodiment, it is possible that the cleaner bottom plate (not shown) is formed to be connected to the bottom surface 130. With this configuration, when the second cleaner 3 is coupled to the cleaner bottom plate (not shown), the overall center of gravity of the cleaner station 1 is lowered to stably support the cleaner station 1.

[0107] In this embodiment, the third outer wall surface 143 and the fourth outer wall surface 144 may refer to surfaces connecting the first outer wall surface 141 and the second outer wall surface 142. Here, the third outer wall surface 143 may be disposed on the left surface of the cleaner station 1, and the fourth outer wall surface 144 may be disposed on the right surface of the cleaner station 1. Unlike this, it is also possible that the third outer wall surface 143 may be disposed on the right surface of the cleaner station 1, and the fourth outer wall surface 144 may be disposed on the left surface of the cleaner station 1. That is, the order of the third and fourth outer wall surfaces do not refer to a direction and may be interchanged with each other according to convenience.

[0108] The third outer wall surface 143 or the fourth outer wall surface 144 may be formed not only in a flat shape, but also in a curved shape as a whole, or may be formed to include a partial curved surface.

[0109] Meanwhile, a structure for mounting various types of the cleaning modules 290 which are used in the first cleaner 2, that is, the receiver 110 can be added to the third outer wall surface 143 or the fourth outer wall surface 144. This will be described in detail with reference to FIG. 2 and the following figures.

[0110] Also, a structure to which the second cleaner 3 can be coupled may be added to the third outer wall surface 143 or the fourth outer wall surface 144. Accordingly, a structure corresponding to the shape of the second cleaner 3 may be added to the third outer wall surface 143 or the fourth outer wall surface 144.

[0111] Also, a cleaner bottom plate (not shown) to which the bottom surface of the second cleaner 3 can be coupled may be additionally coupled to the third outer wall surface 143 or the fourth outer wall surface 144. Meanwhile, according to another embodiment, it is possible that the cleaner bottom plate (not shown) is formed to be connected to the bottom surface 130.

[0112] The cleaner station 1 may include a housing cover 200 that surrounds the outside of the housing 100. Specifically, the housing cover 200 may be combined with the outer wall surface 140 of the housing 100, thereby separating the outer wall surface 140 from the outside. In addition, the housing cover 200 may form an approximate external appearance of the cleaner station 1, together with the top surface 120 and the bottom surface 130 of the housing 100.

[0113] The exterior of the housing cover 200 may be formed as a whole in a streamlined shape. Accordingly, aesthetic impression can be provided to users.

[0114] The housing cover 200 may be openably and closably coupled. (See FIGS. 2 and 3) Therefore, the user is able to open the housing cover 200 and operate the inside if necessary. The housing cover 200 may be formed to open right and left from the front. In another embodiment, unlike this, the housing cover may be formed on the rear surface in such a way as to open to the front.

[0115] The housing cover 200 may be formed by a set of a plurality of covers 210 and 220, and an embodiment thereof will be described later with reference to FIGS. 2 to 4.

[0116] The cleaner station 1 may include the coupling portion 300 for coupling the first cleaner 2. Specifically, the coupling portion 300 may be disposed on the first outer wall surface 141, and the main body of the first cleaner 2, the dust bin, and the battery housing (not shown) may be coupled to the coupling portion.

[0117] The coupling portion 300 may include the coupling surface 310. The coupling surface 310 may be disposed on a side surface of the housing 100. For example, the coupling surface 310 may refer to a surface formed in a shape of a groove concave toward the inside of the cleaner station 1 from the first outer wall surface 141. That is, the coupling surface 310 may be formed to have a step difference with respect to the first outer wall surface 141.

[0118] The first cleaner 2 may be coupled to the coupling surface 310. For example, the coupling surface 310 may be in contact with the low surface of a battery housing 230 and the dust bin of the first cleaner 2. Here, the lower surface may mean a surface facing the ground when the user uses the first cleaner 2 or puts it on the ground.

[0119] For example, an angle between the coupling surface 310 and the ground may be a right angle. Through this, when the first cleaner 2 is coupled to the coupling surface 310, the space of the cleaner station 1 can be minimized.

[0120] As another example, the coupling surface 310 may be disposed to be inclined at a predetermined angle to the ground. Through this, when the first cleaner 2 is coupled to the coupling surface 310, the cleaner station 1 can be stably supported.

[0121] The coupling surface 310 may include a surface having a shape corresponding to the outer surface of the dust bin, in order to guide the dust bin. The coupling surface may be extended in a curved manner from the first outer wall surface 141 along the structure in which the dust bin is disposed.

[0122] The coupling portion 300 may include the extension tube lead-in groove 320. The extension tube of the first cleaner 2 may be coupled to the extension tube lead-in groove 320.

[0123] The extension tube lead-in groove 320 may be formed to correspond to the appearance of the extension tube. As described above, in consideration of the appearance of the extension tube that may be formed in an approximately cylindrical shape, the extension tube lead-in groove 320 may be formed as a recessed groove having a predetermined curvature.

[0124] The extension tube lead-in groove 320 may be connected to the first outer wall surface 141. Specifically, the extension tube lead-in groove 320 may extend downward from the side connected to the coupling surface 310 of the first outer wall surface 141.

[0125] The coupling portion 300 may include a coupling sensor 330 (not shown). The coupling sensor 330 can detect whether or not the first cleaner 2 is coupled to the coupling portion 300. A contact sensor or a non-contact sensor may be selected as the coupling sensor 330.

[0126] The coupling sensor 330 may be disposed on the coupling surface 310, and any one position of the interior space that contacts the main body of the first cleaner 2 may be selected.

[0127] The cleaner station 1 according to the embodiment of the present disclosure may include a fixing unit 600 (not shown). The fixing unit 600 may be disposed on a sidewall 124. In addition, the fixing unit 600 may be disposed on the back surface of the coupling surface 310. The fixing unit 600 may fix the first cleaner 2 coupled to the coupling surface 310.

[0128] The fixing unit 600 may include a fixing member 610 (not shown) for fixing the battery housing 230 and the dust bin of the first cleaner 2, and a stationary motor

620 (not shown) for driving the fixing member 610. In addition, the fixing unit 600 may further include a stationary gear 134 that transmits the power of the stationary motor 620 to the fixing member 610, and a stationary link 135 that converts the rotational motion of the stationary gear 134 into the reciprocating motion of the fixing member 610.

[0129] The fixing member 610 may be disposed on both sides of the coupling portion 300, respectively. For example, two fixing members 610 may be symmetrically arranged in pairs around the coupling surface 310.

[0130] The stationary motor 620 may provide power to move the fixing member 610. Specifically, the stationary motor 620 may rotate and drive the fixing member 610 in a forward or reverse direction through a gear. Here, the forward direction may mean a direction in which the fixing member 610 is moved from the inside of the sidewall 124 in a direction in which the dust bin is pressed. Also, the reverse direction may mean a direction in which the fixing member 610 moves from a position where the dust bin is pressed to the inside of the sidewall 124. The forward direction may be opposite to the reverse direction.

[0131] Accordingly, when the main body of the first cleaner 2 is disposed on the coupling portion 300, the fixing unit 600 may fix the main body of the first cleaner 2. Specifically, when the main body of the first cleaner 2 is coupled to the coupling portion 300 of the cleaner station 1, the stationary motor 620 may move the fixing member 610 and may fix the main body of the first cleaner 2.

[0132] Meanwhile, the cleaner station 1 according to the embodiment of the present disclosure may include the dust collector 400 (not shown). The dust collector 400 may be disposed within the housing 100. The dust collector 400 may be disposed below the coupling portion 300 in the direction of gravity. That is, the height of the dust collector 400 from the ground may be less than the height of the coupling portion 300 from the ground.

[0133] The dust collector 400 may have a predetermined space within the housing 100. In addition, the dust collector may be disposed below the receiver 110 in the direction of gravity, and may be disposed over the dust suction module 500.

[0134] That is, in the cleaner station 1 according to the embodiment of the present disclosure, the coupling portion 300, the cover 200, the dust collector 400, and the dust suction module 500 are sequentially arranged from top to bottom based on the direction of gravity.

[0135] The dust collector 400 may include roll vinyl (not shown). The roll vinyl is fixed to the housing 100 and may spread downward by the weight of dust falling from the dust bin.

[0136] The cleaner station 1 may include a joining portion (not shown). The joining portion may be disposed on the housing 100. The joining portion may be disposed in the upper region of the dust collector 400. The joining portion may cut and join the upper region of the roll vinyl that has collected the dust. Specifically, the joining por-

tion may collect the roll vinyl into a central region and may perform hot wire joining on the upper region of the roll vinyl. The joining portion may include a first joining member (not shown) and a second joining member (not shown). The first joining member (not shown) may move in a first direction through a first joint drive unit 174, and the second joining member (not shown) may move in a second direction perpendicular to the first direction through a second joint drive unit 175.

[0137] With this configuration, dust collected from the first cleaner 2 or the second cleaner 3 can be collected within the roll vinyl, and the roll vinyl can be automatically joined. Accordingly, since the user does not need to separately tie the dust-collecting bag or the like, the convenience of the user can be improved.

[0138] Also, the cleaner station 1 according to the embodiment of the present disclosure may include a flow path portion 700 (not shown). The flow path portion 700 may be disposed in the interior space of the housing 100 and may connect the first cleaner 2 or the second cleaner 3 and the dust collector 400.

[0139] The flow path portion 700 may be defined as a first flow path 710 that connects the dust bin of the first cleaner 2 and the dust collector 400 and a second flow path 720 that connects the second cleaner 3 and the dust collector 400.

[0140] In addition, the flow path portion 700 may include a flow path switching device 730 (not shown) capable of selectively opening and closing the first flow path 710 (not shown) and the second flow path 720 (not shown) which are connected to the dust collector 400.

[0141] The first flow path 710 may connect the dust bin of the first cleaner 2 and the dust collector 400. The first flow path 710 may be disposed on the rear side of the coupling surface 310. The first flow path 710 may refer to a space between the dust bin of the first cleaner 2 and the dust collector 400. Also, the first flow path 710 may be defined as a path provided to connect the dust bin of the first cleaner 2 and the dust collector 400. Furthermore, the first flow path 710 may be a space formed rearward from the dust bin, or may be a flow path which is formed to be bent downward from the dust bin and allows dust and air to flow therethrough. The dust in the dust bin of the first cleaner 2 may move to the dust collector 400 through the first flow path 710.

[0142] The first flow path 710 may be disposed between the first receiving space 111 and a second receiving space 112. With regard to this, the arrangement of the receiver 110 will be described later in detail.

[0143] The second flow path 720 may connect the second cleaner 3 and the dust collector 400. The dust in the second cleaner 3 may move to the dust collector 400 through the second flow path 720.

[0144] The flow path switching device 730 may be disposed between the dust collector 400 and both the first flow path 710 and the second flow path 720. The flow path switching device 730 may selectively open and close the first flow path 710 and the second flow path

720 connected to the dust collector 400. Through this, it is possible to prevent that the suction force is decreased by opening the plurality of flow paths 710 and 730.

[0145] For example, when only the first cleaner 2 is coupled to the cleaner station 1, the flow path switching device 730 may connect the first flow path 710 and the dust collector 400 and may disconnect the connection between the second flow path 720 and the dust collector 400.

[0146] As another example, when only the second cleaner 3 is coupled to the cleaner station 1, the flow path switching device 730 may disconnect the connection between the first flow path 710 and the dust collector 400 and may connect the second flow path 720 and the dust collector 400.

[0147] As another example, when both the first cleaner 2 and the second cleaner 3 are coupled to the cleaner station 1, the flow path switching device 730 may connect the first flow path 710 and the dust collector 400 and may disconnect the connection between the second flow path 720 and the dust collector 400, thereby first removing the dust of the dust bin of the first cleaner 2. Then, the flow path switching device 730 may disconnect the connection between the first flow path 710 and the dust collector 400 and may connect the second flow path 720 and the dust collector 400, thereby removing the dust of the second cleaner 3. Through this, the convenience of using the first cleaner 2 manually operated by the user can be increased.

[0148] The cleaner station 1 according to the embodiment of the present disclosure may include the dust suction module 500. The dust suction module 500 may include the dust collection motor 510 and at least one filter.

[0149] The dust collection motor 510 may be disposed below the dust collector 400. The dust collection motor 510 may generate a suction force in the first flow path 710 and the second flow path 720. Through this, the dust collection motor 510 may provide a suction force capable of sucking the dust in the dust bin of the first cleaner 2 and the dust in the second cleaner 3.

[0150] The dust collection motor 510 may generate a suction force by rotation. For example, the dust collection motor 510 may be formed in a shape similar to a cylinder.

[0151] The dust suction module 500 may include a pre-filter between the dust collector 400 and the dust collection motor 510. Also, the dust suction module 500 may include a HEPA filter between the dust collection motor 510 and the housing 100. Furthermore, various filters capable of filtering dust may be selected and provided.

[0152] The cleaner station 1 may include a charging part 800. The charging part may be disposed in the coupling portion 300. The charging part 800 may be electrically connected to the first cleaner 2 coupled to the coupling portion 300. The charging part 800 may supply power to the battery of the first cleaner 2 coupled to the coupling portion 300.

[0153] Also, the charging part 800 may be electrically connected to the second cleaner 3 coupled to the lower

portion of the housing 100. The charging part 800 may supply power to the battery of the second cleaner 3 coupled to the lower portion of the housing 100.

[0154] The cleaner station 1 may include a side door 420 disposed on both sides of the housing 100 and a door opening device 410 capable of locking the side doors 420. (see FIG. 3) The user is able to open and close the side door 420 by operating the door opening device 410. The side door 420 may selectively expose the dust collector 400 to the outside. Through this, the user is able to easily remove the dust collector 400 from the cleaner station 1.

[0155] Hereinafter, a receiving structure of the cleaner station 1 according to the embodiment of the present disclosure will be described in detail with reference to FIGS. 1 to 3.

[0156] Referring to FIGS. 2 and 3, the cleaner station 1 according to the embodiment of the present disclosure may further include the receiver 110 in the housing 100. The receiver 110 may receive the cleaning module 20 included in the cleaners 2 and 3 coupled to the cleaner station 1.

[0157] Specifically, the receiver 110 may include the receiving spaces 111 and 112, receiving surfaces 114 and 115, and a support device 113.

[0158] The receiver 110 may be disposed on any one or a plurality of outer wall surfaces 141, 142, 143, and 144 of the housing 100. In the embodiment of the present disclosure, it is shown that the receiver is disposed on the third outer wall surface 143 and the fourth outer wall surface 144. (see FIGS. 2 and 3) In another embodiment, the receiver may be disposed on the first outer wall surface 141 or the second outer wall surface 142. Hereinafter, for convenience, the receiver 110 of the present disclosure is based on the premise that the receiver is disposed on the third outer wall surface 143 and the fourth outer wall surface 144.

[0159] The receiver 110 may include the receiving spaces 111 and 112 recessed in the outer wall surfaces 143 and 144. In addition, the receiver 110 may include the receiving surfaces 114 and 115 formed to be recessed to have a predetermined level difference in the outer wall surfaces 143 and 144.

[0160] The receiving spaces 111 and 112 may be defined as an empty space between the housing cover 200 and the receiving surfaces 114 and 115. The receiving spaces 111 and 112 may be separated from the outside by the housing cover 200 and may be exposed to the outside when the housing cover 200 is opened. Accordingly, the user may receive the cleaning module 20 in the receiving spaces 111 and 112 by opening the housing cover 200. In addition, the housing cover 200 is closed after the cleaning module 20 is received, so that it is possible to prevent the receiving spaces 111 and 112 and the cleaning module 20 disposed in the receiving spaces 111 and 112 from being exposed to the outside. Accordingly, according to the embodiment of the present disclosure, the cleaning module 20 is not exposed to the out-

side when not in use, so that aesthetic impression can be provided to the user.

[0161] The receiver 110 may include one or more receiving spaces 111 and 112, and the area and volume of the receiving spaces 111 and 112 may be selectively formed according to the shape and volume of the cleaning module 20 to be arranged.

[0162] The storage surfaces 114 and 115 may be formed corresponding to the number of the receiving spaces 111 and 112. The shapes of the receiving surfaces 114 and 115 may also be selectively formed according to the shape and volume of the cleaning module 20 to be arranged. A specific coupling relationship between the receiving spaces 111 and 112, the receiving surfaces 114 and 115, and the cleaning module 20 will be described later with reference to FIGS. 5 to 10.

[0163] The receiver 110 may include the support device 113. The support device 113 may be coupled to the receiving surfaces 114 and 115. The support device 113 may be disposed in the receiving spaces 111 and 112 and may grab the cleaning module 20 mounted in the receiving spaces 111 and 112. Specifically, the support device 113 may grab a pipe or a nozzle of the cleaning module 20.

[0164] One or more support devices 113 may be disposed in the receiving spaces 111 and 112 in consideration of the volume of the cleaning module 20 that is mounted within the receiving spaces 111 and 112. Referring to FIGS. 2 and 3, one support device 113 may be disposed in the first receiving space 111. Also, two support devices 113 may be disposed in the second receiving space 112. The detailed shape of the support device 113 will be described later with reference to FIG. 10.

[0165] Referring to FIGS. 2 and 3, the receiving space disposed on the third outer wall surface 143 may be referred to as the first receiving space 111, and the receiving space disposed on the fourth outer wall surface 144 may be referred to as the second receiving space 112. In addition, the receiving surface recessed in the third outer wall surface 143 may be referred to as the first receiving surface 114, and the receiving surface recessed in the fourth outer wall surface 144 may be referred to as the second receiving surface 115. Hereinafter, the above-described names are used for convenience unless specifically referred.

[0166] The first receiving space 111 and the second receiving space 112 may be spaced apart from each other by a predetermined distance, in order to prevent interference with the first flow path 710. In addition, each of the heights to which the first receiving space 111 and the second receiving space 112 are recessed may be less than the left and right width of the cleaner station 1, that is, a half of the maximum interval between the third outer wall surface 143 and the fourth outer wall surface 144.

[0167] In addition, the level differences by which the receiving surfaces 114 and 115 are recessed from the third outer wall surface 143 and the fourth outer wall surface 144 may be less than the maximum interval between

the third outer wall surface 143 and the fourth outer wall surface 144, that is, a half of the left and right length of the housing 100.

[0168] However, according to the embodiment, the position where the flow path is disposed may be closer to any one of the outer wall surfaces 141, 142, 143, and 144. In this embodiment, the height to which the receiving space is recessed may be longer than a half of the left and right length of the housing 100.

[0169] The housing cover 200 may be openable and closeable to expose at least one side surface of the housing 100, that is, one or more outer wall surfaces 141, 142, 143, and 144 to the outside. Specifically, the housing cover 200 in an open state allows one or more outer wall surfaces 141, 142, 143, and 144 and the receiver 110 disposed on the outer wall surfaces 141, 142, 143, and 144 to the outside.

[0170] Referring to FIGS. 2 and 3, according to the embodiment of the present disclosure, the housing cover 200 may be opened right and left from the front to the rear. The housing cover 200 may be formed such that the front side of the housing cover 200 is opened corresponding to the shape of the coupling surface 310 and the extension tube lead-in groove 320. Here, the user can grip and open an end of the housing cover 200 opened from the front side.

[0171] In another embodiment, the housing cover 200 may be opened right and left from the rear to the front. In this case, a groove that the user can grip for opening may be formed in the rear.

[0172] The housing cover 200 may include the first cover 210 and the second cover 220. For convenience, a portion that surrounds the third outer wall surface 143 disposed on the left side of the housing 100 may be referred to as the first cover 210, and a portion that surrounds the fourth outer wall surface 144 disposed on the right side of the housing 100 may be referred to as the second cover 220. This is only for descriptive convenience, and the first cover 210 and the second cover 220 may be interchanged with each other.

[0173] The shape of the front of the housing cover 200 may be formed to correspond to the coupling surface 310 and the extension tube lead-in groove 320. In a state where the first cleaner 2 is coupled to the cleaner station 1, the housing cover 200 may come into contact with the extension tube. Specifically, the first cover 210 and the second cover 220 support the right and left of the extension tube, thereby preventing the extension tube from shaking. In addition, the first cover 210 and the second cover 220 may have a predetermined thickness to support the extension tube more effectively.

[0174] The housing cover 200 may further include a fixing device 240 (not shown) for maintaining the first cover 210 and the second cover 220 in a closed state. The fixing device 240 may be formed on the ends of the first cover 210 and the second cover 220.

[0175] Referring to FIG. 4, hinge portions 211 and 221 may be coupled to the first cover 210 and the second

cover 220 for opening and closing. The hinge portions 211 and 221 may be disposed on inner surfaces of the covers 210 and 220. The hinge portions 211 and 221 may include hinges 211a and 221a and hinge links 211b and 221b.

[0176] The hinges 211a and 221a refer to members that rotatably connect the upper and lower plates and may be composed of a bushing and a shaft. The hinges 211a and 221a may selectively have various shapes commonly used in the industry.

[0177] In the embodiment of the present disclosure, in order to open the covers 210 and 220 left and right from the front, the hinges 211a and 221a may be disposed on the rear inner surfaces of the covers 210 and 220. Accordingly, the covers 210 and 220 may be opened by rotating clockwise and counterclockwise, respectively about the hinges 211a and 221a as a central axis.

[0178] In another embodiment of the present disclosure, in order to open the covers 210 and 220 left and right from the front, the hinges 211a and 221a may be disposed on the front inner surfaces of the covers 210 and 220.

[0179] The hinge links 211b and 221b may be provided in order to more stably transmit a rotational force of the hinges 211a and 221a to the covers 210 and 220. The hinge links 211b and 221b may be formed to extend in correspondence with the inner surfaces of the covers 210 and 220.

[0180] A plurality of the hinge links 211b and 221b may be provided on the inner peripheral surface of the covers 210 and 220 in the direction of gravity. In the embodiment in which at least two hinge links 211b and 221b are provided in the direction of gravity, the user can freely select a gripping height for opening the covers 210 and 220. A force applied to the covers 210 and 220 by the user can be efficiently transmitted up and down through the hinge links 211b and 221b. Accordingly, the covers 210 and 220 can be efficiently opened regardless of the user's gripping position.

[0181] Referring to FIGS. 2 and 3, link guide grooves 143a and 144a may be formed on the outer wall surfaces 143 and 144 of both sides of the housing 100. The link guide grooves 143a and 144a are formed such that the hinge links 211b and 221b can be disposed therein.

[0182] The link guide grooves 143a and 144a have a recessed groove shape corresponding to the shape of the hinge links 211b and 221b. Accordingly, the link guide grooves may be in close contact with the housing 100 in a state where the covers 210 and 220 are in a closed state. The number of link guide grooves 143a and 144a may be selected corresponding to the number of hinge links 211b and 221b.

[0183] Referring to FIG. 2, in the embodiment of the present disclosure, a plurality of support protrusions 115a and 115b may protrude from the second receiving surface 115. The specific shape of the support protrusions 115a and 115b and a structure supporting the cleaning module 20 will be described later in detail with reference

to FIGS. 8 to 9B.

[0184] The embodiment of the present disclosure may further include brush holders 222 and 223 on the inner surface of the second cover 220. The brush holders 222 and 223 may hold a cleaning brush 24 capable of removing dust accumulated on the outside of the cleaning module 20 and the first cleaner 2. The detailed shape and holding structure will be described later with reference to FIGS. 9A, 9B and 20.

[0185] FIG. 4 is a perspective view showing a state where one side of the housing cover 200 according to the embodiment of the present disclosure is disassembled.

[0186] Referring to FIG. 4, the covers 210 and 220 may include the hinge portions 211 and 221. Since the configuration of the hinge portions 211 and 221 has been described above, the characteristic parts of the embodiment of the present disclosure will be described below in order to prevent repetitive descriptions. In addition, the description is made based on the embodiment of the first cover 210 shown in FIG. 4.

[0187] The embodiment of the present disclosure shows that the first cover 210 includes three hinges 221a in the direction of gravity. Each hinge 221a provided up and down may support the first cover 210 while rotating, thereby preventing the first cover from rattling or opening. In addition, the hinge 221a disposed in the middle prevents a gap between the first cover 210 and the third outer wall surface 143, thereby preventing the inflow of foreign substances or the bending of the first cover 210.

[0188] The hinge 221a may be formed in an approximately bent shape, such as "r". A shaft capable of rotating the hinge 221a may be inserted into one side end of the hinge 221a. The hinge link 211b may be connected to the other side end of the hinge 221a. When the hinge link 211b is omitted, the hinge 221a may be connected to the inner surface of the first cover 210.

[0189] The hinge link 211b may be fixedly coupled to the first cover 210 at least twice. The coupling may be performed by a fixing member such as a pin or a bolt, and various coupling methods commonly used in the industry such as welding or heat treatment may be used.

[0190] The hinge link 211b may be formed to extend in a straight line in correspondence with the shape of the first cover 210 or may be partially formed to extend in a curved manner in correspondence with the curved shape of the first cover 210.

[0191] Referring to FIG. 4, an inner cover 233 of a catching device 230 may be provided inside the first cover 210. When a rotating plate 232 of the catching device 230 rotates, the inner cover 233 can prevent the rotating plate 232 from being interfered with by the outer wall surfaces 143 and 144. The inner cover 233 can prevent the catching device 230 from being exposed to the interior space of the housing cover 200. The detailed shape and coupling structure of the catching device 230 will be described later with reference to FIGS. 11 to 16.

[0192] The above-described shape and coupling struc-

ture of the first cover 210 and the hinge portion 211 can be used for description of the shape and coupling structure of the symmetrical second cover 220 and the hinge portion 221.

[0193] FIGS. 5 and 6 show an enlarged structure of the receiver 110 according to a first embodiment of the present disclosure. FIGS. 7A and 7B show an enlarged structure where a first cleaning module 21 is coupled to the receiver 110 according to the first embodiment of the present disclosure. FIG. 10 shows the enlarged support device 113 according to the embodiment of the present disclosure. FIG. 17 shows the appearance of the first cleaning module 21 that is mounted on the receiver 110 according to the first embodiment of the present disclosure.

[0194] First, referring to FIG. 10, the support device 113 according to the embodiment of the present invention may include a coupling portion 1131, a contact surface 1132, an elastic piece 1133, and an opening 1134.

[0195] The support device 113 may grab the cleaning module 20 that is pushed into the inside through the opening 1134. The shape of the support device 113 may be formed in an approximate "C" shape. The position of the opening 1134 may be formed in a direction opposite to the receiving surfaces 114 and 115 in consideration of the convenience of the user. In the embodiment of the present disclosure, it is designed such that the support device 113 grabs the left and right of the cleaning module 20. A method in which the support device 113 grabs the top and bottom of the cleaning module 20 in correspondence with the shape of the cleaning module 20 may be selected.

[0196] The coupling portion 1131 may protrude from the receiving surface. Specifically, the coupling portion 1131 may perform a function of coupling the support device 113 to the receiving surfaces 114 and 115 or the receiving spaces 111 and 112. Although the embodiment of the present disclosure shows that the coupling portion 1131 is disposed on the receiving surfaces 114 and 115, the coupling portion 1131 may be coupled to the sidewall or bottom surface of the receiving spaces 111 and 112 in consideration of the shape of the cleaning module 20.

[0197] A hole into which a coupling member can be pushed may be formed within the coupling portion 1131. In correspondence with the hole, a hole or a member into which the coupling member can be pushed may be further disposed on the sidewall or bottom surface of the receiving surfaces 114 and 115 or the receiving spaces 111 and 112. Accordingly, the coupling portion 1131 can be fixed to a predetermined surface on which the coupling portion is disposed.

[0198] The contact surface 1132 may be connected to the coupling portion 1131 on one side. The contact surface 1132 may contact the cleaning module 20 mounted within the support device 113 on the other side. The contact surface 1132 may be formed in a flat plate shape. The contact surface 1132 may be formed to have a predetermined curvature in consideration of the shape of

the cleaning module 20 in contact with the contact surface.

[0199] The contact surface 1132 may have a hole 1132a formed therein into which the coupling member can be pushed. The hole 1132a may be formed at a position corresponding to the hole of the coupling portion 1131 and the hole formed on the sidewall or bottom surface of the receiving surfaces 114 and 115 or the receiving spaces 111 and 112 which are described above. Accordingly, a single member may pass through the corresponding hole 1132a, and the support device 113 may be coupled to the sidewall or bottom surface of the receiving surfaces 114 and 115 or the receiving spaces 111 and 112.

[0200] The elastic piece 1133 may be formed to extend from both ends of the contact surface. The elastic piece 1133 may be provided in the form of a pair and may form a space therebetween. A nozzle or a pipe of the cleaning module 20 may be mounted in the interior space formed by the elastic piece 1133.

[0201] The pair of elastic pieces 1133 may be formed in a curved shape in consideration of the shape of the nozzle or pipe of the cleaning module 20. Typically, the nozzle or pipe of the cleaning module 20 has an approximately cylindrical shape, and the shape of the curved elastic piece 1133 can improve a supporting force.

[0202] Referring to FIG. 10, in the embodiment of the present disclosure, the pair of elastic pieces 1133 may be symmetrically formed to have the same length and width. In addition, when the shape of the cleaning module 20 is changed, the elastic piece 1133 on one side may be formed longer in order to improve a supporting force.

[0203] Furthermore, if the lengths of the elastic pieces 1133 are different from each other, the position of the opening 1134 may change. Therefore, in order that the opening 1134 is formed at a position that enables the user to easily mount the cleaning module 20, the length may vary.

[0204] The opening 1134 may be defined as an open space formed between ends of the pair of elastic pieces 1133 and into which the cleaning module 20 can be pushed.

[0205] The width of the opening 1134 may refer to a distance between the ends of the elastic piece 1133 disposed within the receiving spaces 111 and 112. That is, the distance between the one side ends of the elastic piece 1133 may be determined by the left and right width of the contact surface 1132, and the distance between the other side ends of the elastic piece 1133 may be determined by the width of the opening 1134.

[0206] The width of the opening 1133 may be smaller than the left and right width of the contact surface 1132. Accordingly, the cleaning module 20 mounted in the interior space of the support device 113 can be prevented from being separated.

[0207] Also, the open width of the opening 1133 may be smaller than the diameter of the cleaning module 20. The user may open the opening 1133 by applying a force

to the opening 1133, and may forcibly push the cleaning module 20 into the opening. Therefore, in order that the cleaning module 20 is disposed in the interior space of the support device 113 and then is discharged to the outside, user's manpower is required. Through this, it is possible to prevent the cleaning module 20 from being naturally separated from the interior space of the support device 113.

[0208] A structure in which the first cleaning module 21 is mounted in the receiver 110 according to the first embodiment of the present disclosure will be described in detail with reference to FIGS. 5 to 7B and FIG. 17.

[0209] The receiver 110 according to the first embodiment of the present disclosure may include the first receiving space 111 and the first receiving surface 114. For convenience, it is described that the receiver 110 of the embodiment is provided on the third outer wall surface 143. However, the receiver 110 may be disposed on any one surface of the outer wall surface 140, and it is obvious that such a change belongs to the scope of the present invention.

[0210] One support device 113 may be disposed in the first receiving space 111. The support device 113 may be connected to the first receiving surface 114.

[0211] The central portion of the first receiving surface 114 may be the most deeply recessed in an arc shape. The first receiving surface 114 may also be formed in a flat shape, and at least a portion of the first receiving surface 114 may be formed to have a curved surface.

[0212] The first receiving surface 114 may further include a plurality of grooves 114a and 114b and an inclined surface 114c that extends at a predetermined angle. The first groove 114a may be disposed above the support device 113, and the second groove 114b may be disposed below the support device 113. The shape of the first receiving surface 114 corresponds to the shape of the disposed cleaning module 20. The first cleaning module 21 will be described below.

[0213] Referring to FIG. 17, the first cleaning module 21 may include a nozzle 21a, a roller 21b, and a cleaning unit 21c.

[0214] The first cleaning module 21 may mean a cleaning suction port (hereinafter, referred to as a "carpet suction port") capable of cleaning carpets or bedding. In addition, the first cleaning module 21 may mean a cleaning suction port (hereinafter, referred to as a "pet suction port") capable of intensively cleaning pet hair. Also, the cleaning module 21 may mean a floor suction port that has a less height than that of a normal suction port.

[0215] The nozzle 21a may have an approximately cylindrical shape and may be connected to the extension tube of the first cleaner 2.

[0216] A device that is able to roll on the ground may be selectively applied to the roller 21b. The user can move the first cleaner 2 by rolling the roller 21b. Through the roller 21b, friction with the ground can be reduced and an external force required for the movement can be reduced.

[0217] The roller 21b may be disposed to protrude in such a way as to be first supported on the ground. In particular, in order that the roller 21b contacts prior to the cleaning unit 21c, the roller 21b may protrude based on an extension line of an angle at which the cleaning unit 21c is inclined.

[0218] The roller 21b may be formed to perform an angular motion at a predetermined angle such that the cleaning unit 21c can contact with the ground. Therefore, after the roller 21b contacts with the ground first, the cleaning unit 21c is pressed by the weight of the first cleaner 2, so that the cleaning unit 21c may contact with the ground secondarily.

[0219] The cleaning unit 21c may suck air mixed with dust while contacting with the ground. The cleaning unit 21c may be inclined at a predetermined angle for user convenience and in order to maintain the contact with the ground. That is, the contact surface of the cleaning unit 21c may be inclined at a predetermined angle with the nozzle 21a.

[0220] Referring to FIGS. 7A and 7B, in the embodiment according to the present disclosure, the first cleaning module 21 may be mounted on the receiver 110 formed on the side of the third outer wall surface 143.

The position of the receiver 110 may be formed on the second outer wall surface 142 or the fourth outer wall surface 144. It is obvious that such a modified embodiment is included in the scope of the present invention.

[0221] The nozzle 21a of the first cleaning module 21 may be pushed into and mounted on the support device 113. In the state of being mounted, the elastic piece 1133 may grab both sides of the nozzle 21a and fix it.

[0222] It is preferable that the left and right width of the interior space of the support device 113 is smaller than the diameter of the nozzle 21a. In this case, the elastic piece 1133 spreads left and right by the nozzle 21a, so that an elastic force to return to its original state may be generated. Accordingly, the nozzle 21a can be more strongly supported by the elastic force.

[0223] The roller 21b of the first cleaning module 21 may contact with the first receiving surface 114. As described above, the roller 21b may be formed to protrude more than the extension line of the cleaning unit 21c. Accordingly, the second groove 114b in which the roller 21b can be disposed without being deformed may be formed in the first receiving surface 114. (See FIG. 5)

[0224] The second groove 114b may be formed to be recessed to have a predetermined curvature in consideration of the diameter of the roller 21b. The second groove 114b may be formed to extend by a predetermined length in the right and left direction. This intends to promote the convenience of a molding process during the manufacture and to respond to changes in the shape and position of the component that is pushed into the second groove 114b.

[0225] The first receiving surface 114 may have the first groove 114a formed above the support device 113. The first groove 114a may be formed such that, when

the shape of the first cleaning module 21 is changed or the first cleaning module 21 is replaced with a pet nozzle, the component can be pushed into the inside of the first groove 114a.

[0226] Therefore, the shape or position of the plurality of grooves 114a and 114b can be changed according to the shape of the cleaning module 20 which is disposed in the first receiving space 111.

[0227] The inclined surface 114c may be in contact with the cleaning unit 21c of the first cleaning module 21 by that the cleaning unit 21c is disposed on the inclined surface 114c. As described above, the cleaning unit 21c may be formed to be inclined at a predetermined angle. Accordingly, the inclined surface 114c may be formed to extend while being inclined in correspondence with the inclined angle of the cleaning unit 21c.

[0228] The inclined angle and area of the inclined surface 114c may correspond to the inclined angle and area of the cleaning unit 21c. Therefore, the inclined surface 114c may be transformed in response to changes in the configuration or shape of the cleaning module 20, and may be omitted if the inclined surface 114c is not required to be placed. Furthermore, when the cleaning module 20 is disposed upside down, the inclined surface 114c may be disposed above the support device 113.

[0229] After the first cleaning module 21 is mounted within the first receiving space 111, the user may close and fix the first cover 210. Therefore, when the first cleaning module 21 is mounted and not used, the first cleaning module 21 can be stored without being exposed to the outside. Accordingly, there is an effect of enhancing the aesthetic impression of the user.

[0230] FIG. 8 shows an enlarged structure of the receiver 110 according to a second embodiment of the present disclosure. FIGS. 9A and 9B show an enlarged structure where a second and third cleaning modules 22 and 23 are coupled to the receiver 110 according to the second embodiment of the present disclosure.

[0231] Referring to FIGS. 8 to 10, the receiver 110 according to the second embodiment of the present disclosure may include the second receiving space 112 and the second receiving surface 115. For convenience, it is described that the receiver 110 of the embodiment is provided on the fourth outer wall surface 144. However, the receiver 110 may be disposed on any one surface of the outer wall surface 140, and it is obvious that such a change belongs to the scope of the present invention.

[0232] Two support devices 113 may be disposed in the second receiving space 112. The number of support devices 113 may be increased or decreased in consideration of the number and size of cleaning modules 20 to be disposed. The support device 113 may be connected to the second receiving surface 115.

[0233] The second receiving surface 115 may be formed in a flat plate shape. The central portion of the second receiving surface 115 may be the most deeply recessed in an arc shape. In addition, a curved surface having a step difference may be formed on at least a

portion of the second receiving surface 115. Also, a groove may be further formed to correspond to the shape of the cleaning module 20 to be disposed.

[0234] Referring to FIG. 8, the second receiving surface 115 may further include the plurality of support protrusions 115a and 115b. The first support protrusion 115a may be disposed above the support device 113, and the second groove 115b may be disposed below the support device 113. The shape of the second receiving surface 115 corresponds to the shape of the disposed cleaning module 20. The second and third cleaning modules 22 and 23 will be described below.

[0235] FIG. 18 shows the second cleaning module 22 that is mounted on the receiver 110 according to the second embodiment of the present disclosure, and FIG. 19 shows the third cleaning module 23 that is mounted on the receiver 110 according to the second embodiment of the present disclosure.

[0236] The second cleaning module 22 may refer to a multi-purpose suction port having an air intake and a cleaning brush so as to clean picture frames or furniture surface.

[0237] The third cleaning module 23 may refer to a gap suction port formed thin and long in order to clean a gap that a basic suction port cannot enter.

[0238] The second cleaning module 22 and the third cleaning module 23 may be changed into various suction ports such as a suction port for sucking hard dust, a suction port for cleaning an upper portion that is out of reach, and a suction port equipped with a bendable extension portion.

[0239] The second cleaning module 22 and the third cleaning module 23 may have in common nozzles that can be connected to the extension tube of the first cleaner 2. Therefore, referring to FIGS. 9A and 9B, the nozzles of the second cleaning module 22 and the third cleaning module 23 may be coupled to the support device.

[0240] Specifically, the nozzles of the second cleaning module 22 and the third cleaning module 23 may be pushed into and mounted on the support device 113. In the state of being mounted, the elastic piece 1133 may grab both sides of the nozzle and fix it.

[0241] It is preferable that the left and right width of the interior space of the support device 113 is smaller than the diameter of the nozzles of the second cleaning module 22 and the third cleaning module 23. In this case, the elastic piece 1133 spreads left and right by the nozzle, so that an elastic force to return to its original state may be generated. Accordingly, the nozzle can be more strongly supported by the elastic force.

[0242] Referring to FIG. 8, as described above, the second receiving surface 115 may further include the first support protrusion 115a and the second support protrusion 115b.

[0243] The first support protrusion 115a and the second support protrusion 115b may support the second cleaning module 22 and the third cleaning module 23. Specifically, the first support protrusion 115a and the sec-

ond support protrusion 115b may be formed to protrude at a predetermined height. Accordingly, positions of the nozzles of the second cleaning module 22 and the third cleaning module 23 disposed within the interior space of the support device 113 may be moved.

[0244] More specifically, the nozzle may move toward the opening 1134 by as much as the height at which the support protrusions 115a and 115b protrude. As described above, the pair of elastic pieces 1133 extends toward the opening 1134 and a gap between the pair of elastic pieces 1133 becomes narrower. Accordingly, the elastic force or supporting force of the elastic piece 1133 increases more toward the opening 1134. Accordingly, the nozzle may receive a stronger supporting force from the elastic piece 1133.

[0245] In another embodiment of the present disclosure, protruding coupling members may be formed in the nozzles of the second and third cleaning modules 22 and 23. Here, the support protrusions 115a and 115b may have a hollow shape corresponding to the coupling member. Therefore, the user can insert and couple the second and third cleaning modules 22 and 23 to the support protrusion.

[0246] After the second and third cleaning modules 22 and 23 are mounted within the second receiving space 112, the user can close and fix the second cover 210. Therefore, when the second and third cleaning modules 22 and 23 are mounted and not used, the second and third cleaning modules 22 and 23 can be stored without being exposed to the outside. Accordingly, there is an effect of enhancing the aesthetic impression of the user.

[0247] Referring to FIGS. 9A and 9B, the second cover 220 may further include a cleaning brush hanger 222 and a cleaning brush support 223. However, the cleaning brush hanger 222 and the cleaning brush support 223 may be formed on the first cover 210. It is obvious that the modified embodiment is included in the scope of the present invention.

[0248] The cleaning brush hanger 222 may be formed to protrude from the inner surface of the second cover 220 in a hollow shape. In addition, the cleaning brush support 223 may be formed to protrude from the inner surface of the second cover 220. Specific shapes of the cleaning brush hanger 222 and the cleaning brush support 223 may be determined in correspondence with the shape of the cleaning brush 24. Therefore, the cleaning brush 24 will be described first with reference to FIG. 20.

[0249] FIG. 20 shows the cleaning brush 24 that is mounted on the cover according to the second embodiment of the present disclosure.

[0250] The cleaning brush 24 includes a brush 24a, a brush pushed-in portion 24b, a body 24c, a catching groove 24d, a hole 24e, and a finishing portion 24f.

[0251] The cleaning brush 24 may include the brush 24a capable of removing dust accumulated on the exteriors of the first cleaner 2 and various cleaning modules 20.

[0252] One side of the brush pushed-in portion 24b

may be open to the outside such that the brush 24a can be pushed in. The other side of the brush pushed-in portion 24b may be connected to the body 24c. More brushes 24a are pushed into the brush pushed-in portion 24b.

5 The open one side of the brush pushed-in portion 24b may have a narrow width such that the user can easily grip the cleaning brush. Therefore, the width of the one open side may be greater than the width of the other side connected to the body 24c.

10 **[0253]** The user grips the body 24c to clean the exterior of the first cleaner 2 and various cleaning modules 20. The body 24c may be extended by a predetermined length in consideration of convenience for the users and the exterior of the first cleaner 2.

15 **[0254]** The catching groove 24d may be formed to be recessed on one side of the body 24c. According to the embodiment, the catching groove 24d may be coupled to a member that can be mounted thereon.

20 **[0255]** The finishing portion 24f may be connected to the body 24c and may be formed in a streamlined shape for user convenience and safety.

[0256] Referring to FIGS. 9A and 9B, the length of major axis of an open space within the cleaning brush hanger 222 may be greater than the width of the body 24c and less than the maximum width of the brush pushed-in portion 24b. Thus, the cleaning brush 24 can be mounted on the cleaning brush hanger 222 without falling to the ground.

25 **[0257]** The cleaning brush support 223 may be formed in a streamlined shape in such a manner as to correspond to the shape of the finishing portion 24f. The cleaning brush support 223 is spaced apart from the cleaning brush hanger 222 by a predetermined distance in the direction of gravity. Here, the predetermined distance may be less than the length of the body 24c. Therefore, the cleaning brush 24 can be supported on both sides thereof by the cleaning brush hanger 222 and the cleaning brush support 223.

30 **[0258]** FIG. 11 shows a state where an auxiliary suction port 30 is mounted on the cleaner station 1 according to the embodiment of the present disclosure. FIGS. 12 and 13 are enlarged partial perspective views of a state where the catching device 230 of the cleaner station 1 according to the embodiment of the present disclosure is opened and closed. FIG. 14 is an enlarged partial perspective view of a state where the auxiliary suction port 30 is mounted on the catching device 230 of the cleaner station 1 according to the embodiment of the present disclosure. FIG. 15 is an enlarged partial perspective view of a part of the housing cover 200 of the cleaner station 1 according to the embodiment of the present disclosure. FIG. 16 is a perspective view showing the catching device 230 of the cleaner station 1 according to the embodiment of the present disclosure.

35 **[0259]** Referring to FIGS. 11 to 16, the housing cover 200 according to the embodiment of the present disclosure may further include the catching device 230.

[0260] The catching device 230 may be formed on the

outer surface of the housing cover 200 such that the auxiliary suction port can be mounted. The catching device 230 may be formed on one side of the housing cover 200. From another point of view, the catching device 230 may be formed on the housing cover 200 disposed above the second, third, and fourth outer wall surfaces 142, 143, and 144. From another point of view, the catching device 230 may be formed on at least one of the first cover 210 and the second cover 220 of the housing cover 200.

[0261] Referring to FIG. 14, the auxiliary suction port 30 may include a coupling protrusion 31, a nozzle 32 and a cleaning unit 33.

[0262] The auxiliary suction port 30 may be mounted by that the coupling protrusion 31 is coupled to the catching device 230. The nozzle 32 may be connected to the extension tube of the first cleaner 2 and may be formed in an approximately cylindrical shape.

[0263] The cleaning unit 33 may contact with the ground. The cleaning unit 33 may be inclined at a predetermined angle for user convenience and in order to maintain the contact with the ground. That is, the contact surface of the cleaning unit 33 may be inclined at a predetermined angle with the nozzle 31.

[0264] A wet mop suction port with a wet mop may be selected as the auxiliary suction port 30 which is mounted on the catching device 230. The wet mop suction port may include a wet mop in the cleaning unit 33. In order to improve cleaning efficiency and to receive, from the ground, a supporting force causing the cleaning unit 33 to move forward, two wet mops may be included. The wet mop may come into contact with the ground. The wet mop may be placed in a wet state after a cleaning process is completed. The height from the ground may be limited in order to limit the radius of dripping water falling from the wet mop. Accordingly, the catching device 230 may be disposed below the housing cover 200.

[0265] Furthermore, the dripping water falling from the wet mop may fall to the ground support portion 131 of the housing 100. If the dripping water collects on the ground support portion 131, rust may occur, and problems such as odor due to mold, and the like may occur. In addition, there may occur a problem that the inside of the cleaner station 1 is flooded. Therefore, the catching device 230 is required to be formed to protrude to the outside by a certain length or more.

[0266] The catching device 230 may include a nozzle holder 231, the rotating plate 232 and the inner cover 233.

[0267] The rotating plate 232 may be disposed on one side of the housing cover 200. The rotating plate 232 may be disposed rotatably by 360 degrees.

[0268] The nozzle holder 231 may be formed to protrude from one side of the rotating plate 232. Specifically, referring to FIG. 16, the nozzle holder 231 may include a contact portion 231a, a connection portion 231b, a support portion 231c, and a pushed-in portion 231d.

[0269] In the nozzle holder 231, the contact portion 231a may be defined as a pair of ends in a direction in which the coupling protrusion 31 is fitted.

[0270] The connection portion 231b may extend from the contact portion 231a toward the ground. In order to prevent the separation of the coupling protrusion 31, the connection portion 231b may extend such that a gap between both side connection portions becomes narrower.

[0271] The support portion 231c may extend in a horizontal direction between ends of the connection portion 231b. The support portion 231c can prevent the auxiliary suction port 30 from falling.

[0272] The pushed-in portion 231d may be defined as an empty space between the pair of contact portions 231a. The coupling protrusion 31 may be fitted through the pushed-in portion 231d and disposed between the pair of connection portions 231b.

[0273] In the nozzle holder 231, a protruding height of the contact portion 231a may be greater than a protruding height of the connecting portion 231b. Also, the protruding height of the connecting portion 231b may be greater than that of the support portion 231c. Accordingly, the nozzle holder 231 may be formed to be inclined from the contact portion 231a to the support portion 231c when viewed from the front.

[0274] From another point of view, when viewed from the front, a height at which an upper portion of the nozzle holder 231 protrudes may be greater than a height at which a lower portion of the nozzle holder 231 protrudes. From another point of view, the nozzle holder 231 may be formed to extend while being inclined toward the housing cover 200 from the top to the bottom.

[0275] Through the above shape, the auxiliary suction port 30 may be mounted in such a way as to be approximately inclined toward the housing cover 200 from the top to the bottom. Therefore, it is possible to minimize the space occupied by the mounted auxiliary suction port.

[0276] Referring to FIG. 14, in the auxiliary suction port 30 in the mounted state, the lowermost end of the cleaning unit 33 may be disposed close to the housing cover 200. Here, as described above, problems may occur when the dripping water falling from the wet mop falls to the ground support portion 131 of the housing 100. Therefore, the nozzle holder 231 may be formed to protrude by a predetermined length or more such that the lowermost end of the cleaning unit 33 is not disposed above the ground support portion 131. From another point of view, the nozzle holder 231 may be arranged such that an extension line from the lowermost end of the cleaning unit 33 to the ground meet the ground at the outside of the ground support portion 131.

[0277] To this end, the minimum protruding lengths of the nozzle holder 231 and the coupling protrusion 31 may be determined.

[0278] In addition, through this, the wet mop is mounted while being exposed to the outside, so that there is an effect that the wet mop can be air-dried.

[0279] Referring to FIGS. 15 and 16, the nozzle holder 231 may be coupled to one side of the rotating plate 232, and the other side of the rotating plate 232 may be formed from a flat plate. An insertion hole 232a may be provided

at the center of the rotating plate 232. A rotation pin 232b may be pushed in the insertion hole 232a. The insertion hole 232a may be formed to pass through the rotating plate 232 in the up and down direction or in the left and right direction. The rotation direction of the rotating plate 232 may be determined based on the direction in which the insertion hole 232a is formed.

[0280] Referring to FIGS. 12 to 14, in a state where the auxiliary suction port 30 is not mounted, the rotating plate 232 may be disposed such that the other side thereof is exposed to the outside. In this state, the nozzle holder 231 is not exposed to the outside, and the housing cover 200 can maintain a streamlined shape. Accordingly, this gives the aesthetic impression to the user. As shown in FIG. 13, the user may selectively expose the nozzle holder 231 to the outside by rotating the rotating plate 232 by 180° only when the auxiliary suction port 30 is mounted.

[0281] Referring to FIG. 15, the catching device 230 according to the embodiment of the present disclosure may further include the inner cover 233.

[0282] The inner cover 233 may be formed in a semi-cylindrical shape. The inner cover 233 may separate the nozzle holder 231 and the rotating plate 232 from the interior space of the housing cover 200. In order to prevent the rotation of the rotating plate 232 from being interfered, the diameter of the inner cover 233 may be larger than the left and right or up and down length of the rotating plate 232.

[0283] Although the present invention has been described above by way of the specific embodiments, this is for describing the present invention in detail. The present invention is not limited thereto and it is clear that the present invention can be modified or improved within the spirit of the present invention by those of ordinary skill in the art.

[0284] All simple modifications or changes of the present invention fall within the scope of the present invention. The specific scope of protection of the present invention will be apparent by the appended claims.

Claims

1. A cleaner station comprising:

a housing which includes an outer wall surface;
a housing cover which is openably and closably coupled to the housing and forms an external appearance;
a coupling portion which is disposed in the housing and includes a coupling surface to which at least a portion of a cleaner is coupled;
a dust collector which is received within the housing, is disposed below the coupling portion, and collects dust within a dust bin of the cleaner; and
a dust collection motor which is received within

the housing, is disposed below the dust collector, and generates a suction force to suck the dust within the dust bin,

wherein the housing comprises a receiver that receives a cleaning module of the cleaner, and wherein the receiver comprises:

a receiving surface which is formed to be recessed to have a predetermined level difference in the outer wall surface; and
a receiving space which is formed between the receiving surface and the housing cover and is separated from the outside.

2. The cleaner station of claim 1, wherein the receiver is disposed such that a height of the receiver from the ground is less than a height of the coupling portion from the ground and is greater than a height of the dust collector.

3. The cleaner station of claim 1, wherein a level difference of the receiving surface with respect to the outer wall surface is less than a half of the left and right length of the housing.

4. The cleaner station of claim 1, wherein the housing cover is openable and closable to expose at least one side surface of the housing to the outside.

5. The cleaner station of claim 4, wherein the housing cover comprises a hinge portion that is disposed on an inner surface thereof and is coupled to the housing.

6. The cleaner station of claim 5, wherein the hinge portion is coupled to a rear side of the housing, and wherein the housing cover is opened to both sides from a front thereof.

7. The cleaner station of claim 1, wherein the receiver further comprises a support device that grabs the cleaning module mounted in the receiving space.

8. The cleaner station of claim 7, wherein the support device comprises:

a coupling portion which protrudes from the receiving surface;
a contact surface which is connected to the coupling portion on one side thereof;
a pair of elastic pieces which is formed to extend from both ends of the contact surface; and
an opening which is formed between ends of the pair of elastic pieces and into which the cleaning

- module is pushed,
wherein an open width of the opening is smaller than a left and right width of the contact surface.
9. The cleaner station of claim 8, wherein the pair of elastic pieces is formed in a curved shape. 5
10. The cleaner station of claim 8, wherein the open width of the opening is smaller than a diameter of the cleaning module. 10
11. A cleaner station comprising:
- a housing which includes a bottom surface; 15
 - a housing cover which is coupled to the housing and forms an external appearance;
 - a coupling portion which is disposed in the housing and includes a coupling surface to which at least a portion of a cleaner is coupled;
 - a dust collector which is received within the housing, is disposed below the coupling portion, and collects dust within a dust bin of the cleaner; 20
 - and
 - a dust collection motor which is received within the housing, is disposed below the dust collector, and generates a suction force to suck the dust within the dust bin, 25
- wherein the housing cover comprises a catching device which is formed to allow an auxiliary suction port of the cleaner to be mounted thereon, 30
- wherein the catching device comprises:
- a rotating plate; and 35
 - a nozzle holder which is formed to protrude from one side of the rotating plate,
- and wherein a user is able to selectively expose the nozzle holder to the outside. 40
12. The cleaner station of claim 11,
- wherein the bottom surface comprises a ground support portion which is formed to extend along a circumference thereof by a predetermined length, 45
 - and wherein, in a state where the auxiliary suction port is mounted on the nozzle holder, an imaginary extension line formed toward the ground comes into contact with the ground at the outside of the ground support portion. 50
13. The cleaner station of claim 11, wherein the nozzle holder is formed to extend such that a protruding height in the direction of gravity becomes shorter. 55
14. A cleaner station comprising:
- a housing;
 - a housing cover which is openably and closably coupled to the housing and forms an external appearance;
 - a coupling portion which is disposed in the housing and includes a coupling surface to which at least a portion of a cleaner is coupled;
 - a dust collector which is received within the housing, is disposed below the coupling portion, and collects dust within a dust bin of the cleaner; and
 - a dust collection motor which is received within the housing, is disposed below the dust collector, and generates a suction force to suck the dust within the dust bin,
- wherein the housing cover comprises a first cover and a second cover which are disposed on both sides thereof, respectively, and wherein the second cover comprises a cleaning brush hanger which is formed to protrude from an inner surface thereof.
15. The cleaner station of claim 14, wherein the second cover further comprises a cleaning brush support which is spaced apart downwardly from the cleaning brush hanger by a predetermined distance.
16. The cleaner station of claim 1, wherein the receiving surface has at least one groove formed therein, in correspondence with a shape of the cleaning module.
17. The cleaner station of claim 7, wherein the receiving space comprises a support protrusion which comes into contact with the cleaning module on an inner surface thereof.
18. The cleaner station of claim 17, wherein the one or more support protrusions are provided and disposed above and below the support device, respectively.
19. A cleaner station comprising:
- a housing;
 - a housing cover which is openably and closably coupled to the housing and forms an external appearance;
 - a coupling portion which is disposed in the housing and includes a coupling surface to which at least a portion of a cleaner is coupled;
 - a dust collector which is received within the housing, is disposed below the coupling portion, and collects dust within a dust bin of the cleaner; and
 - a dust collection motor which is received within the housing, is disposed below the dust collector, and generates a suction force to suck the

dust within the dust bin,

wherein the coupling portion further comprises an extension tube lead-in groove which is formed to extend up and down in response to an extension tube of the cleaner,
and wherein the housing cover is formed to correspond to the extension tube lead-in groove and comes into contact with the extension tube.

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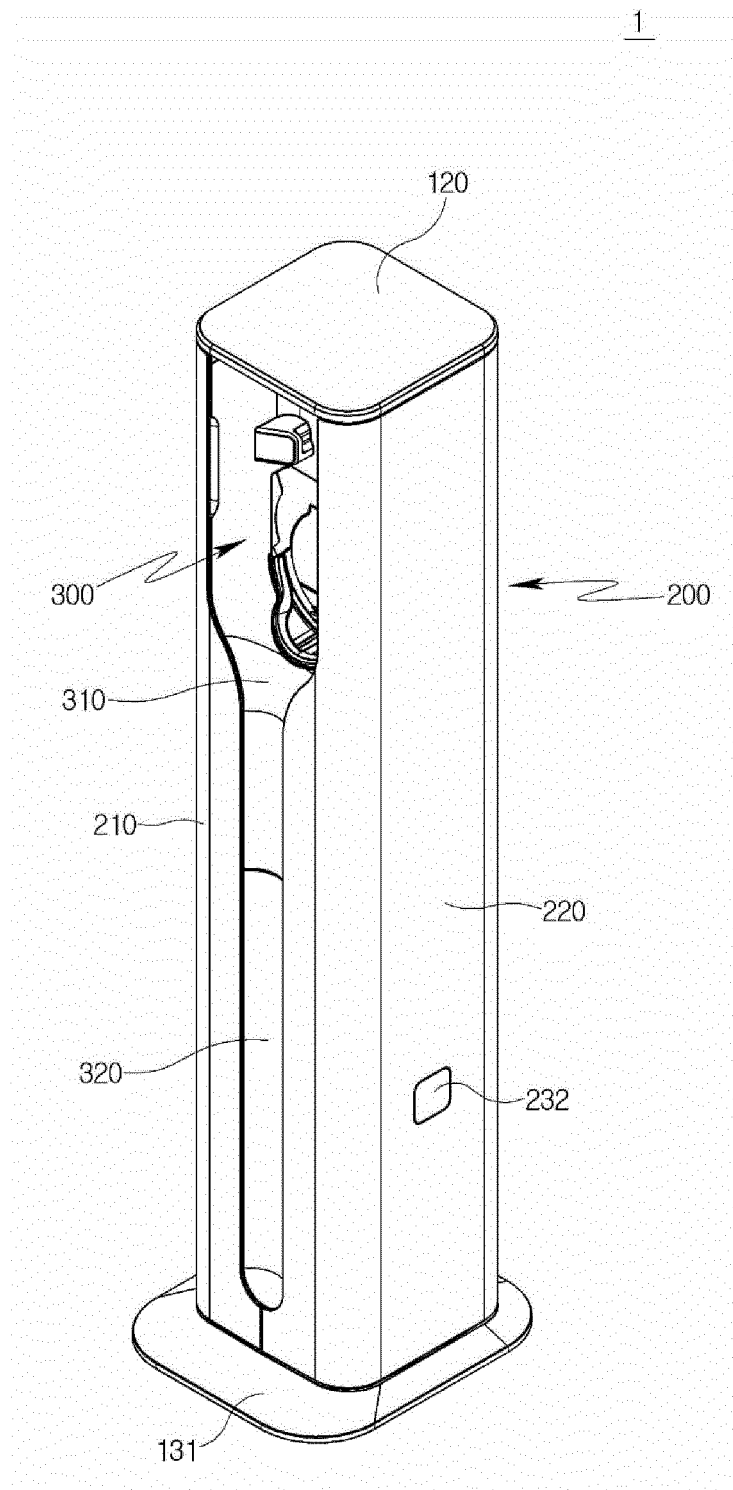
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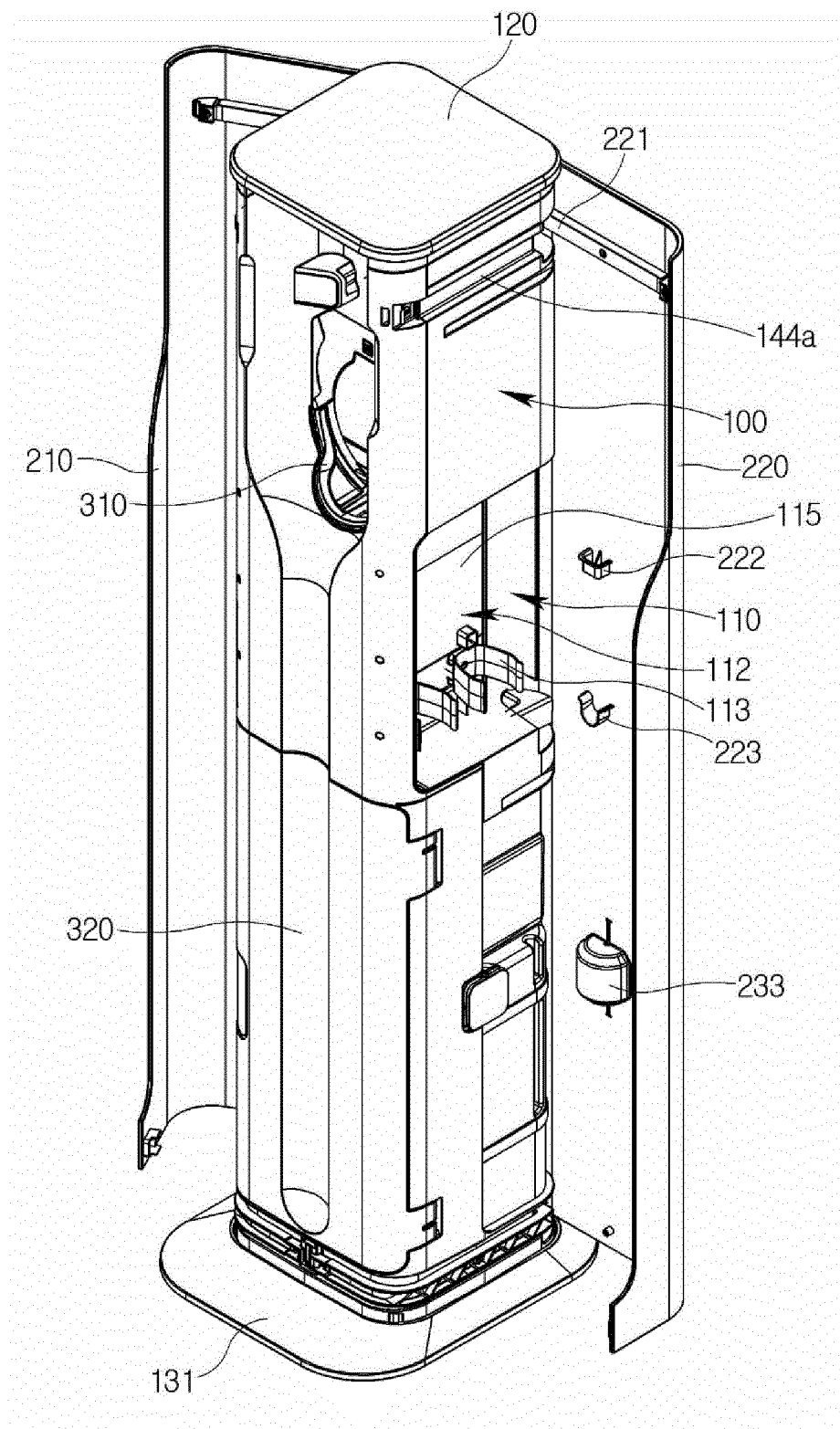
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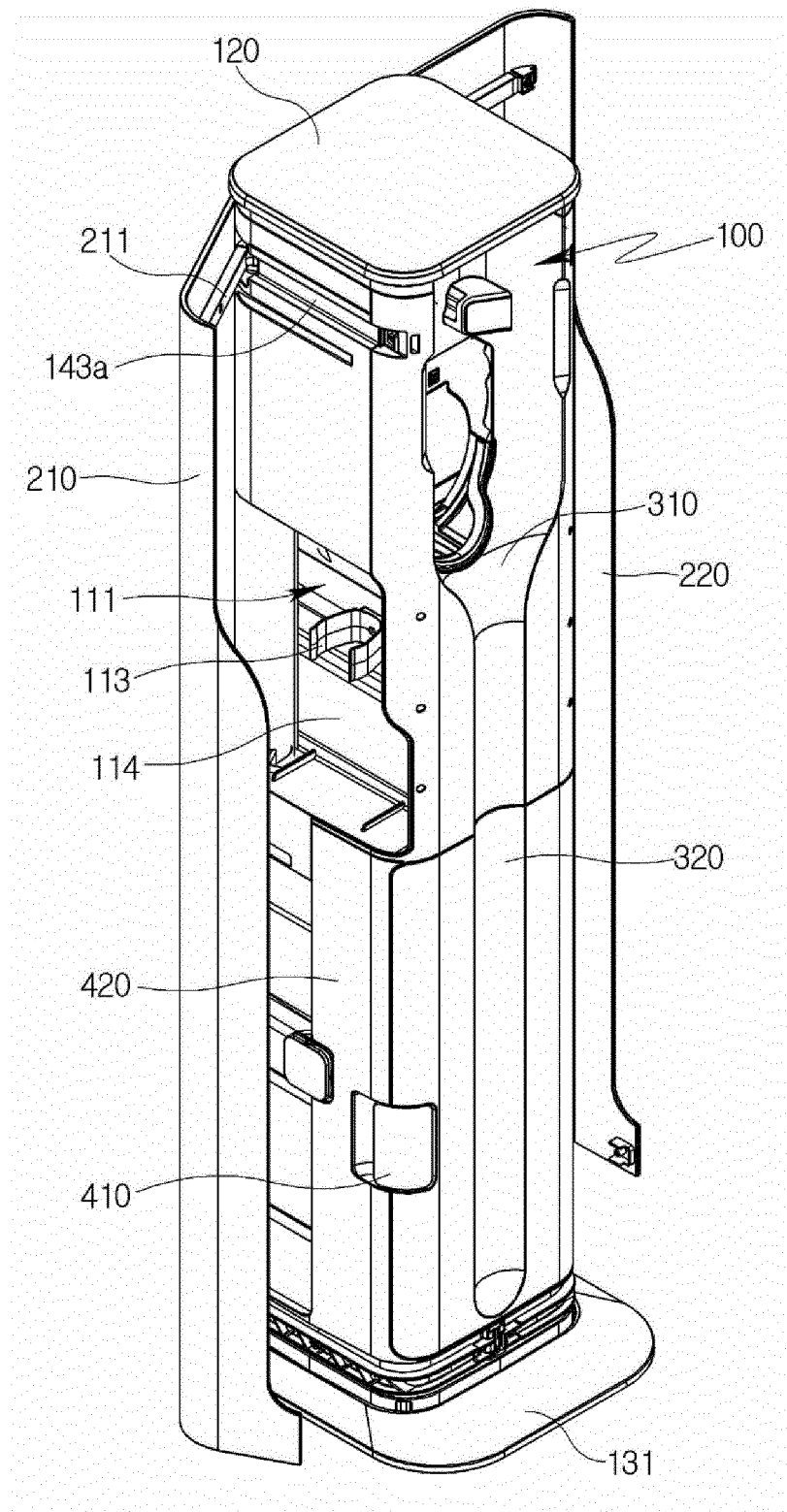
[FIG. 1]



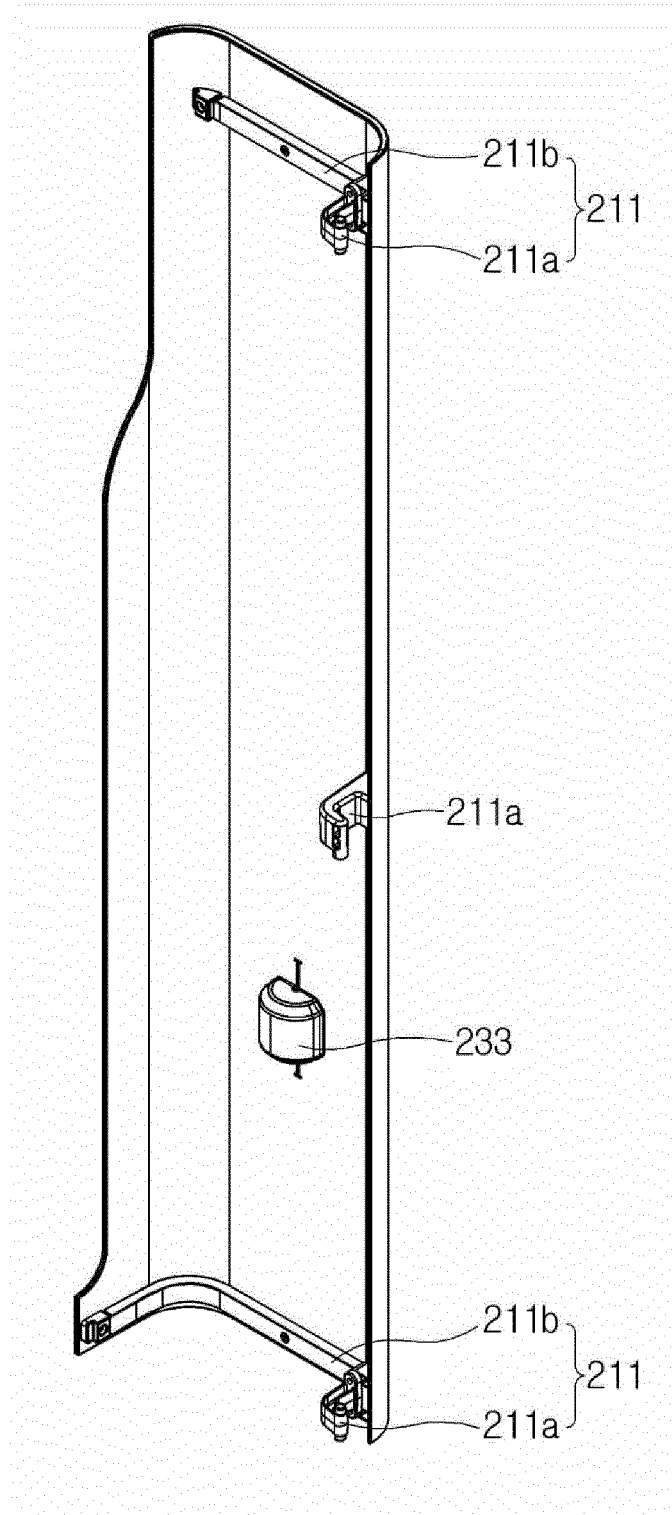
[FIG. 2]



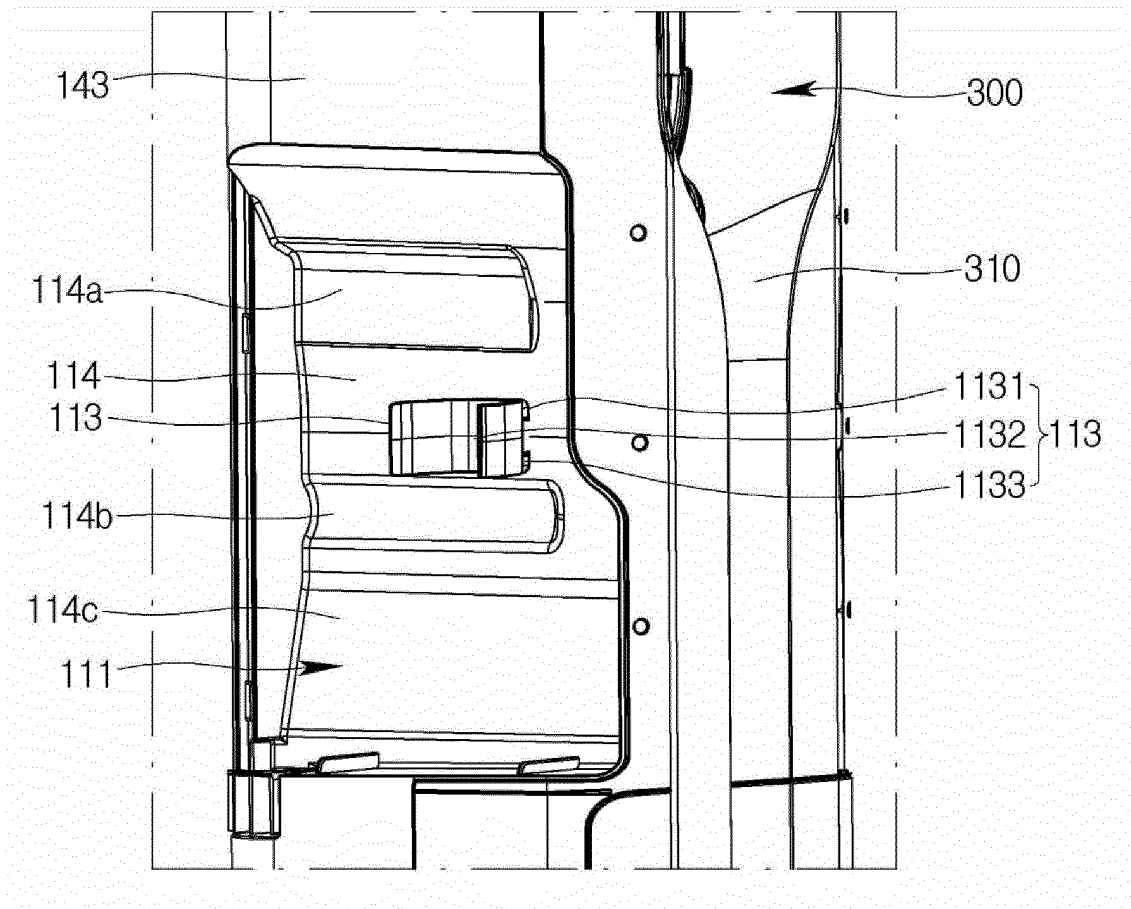
[FIG. 3]



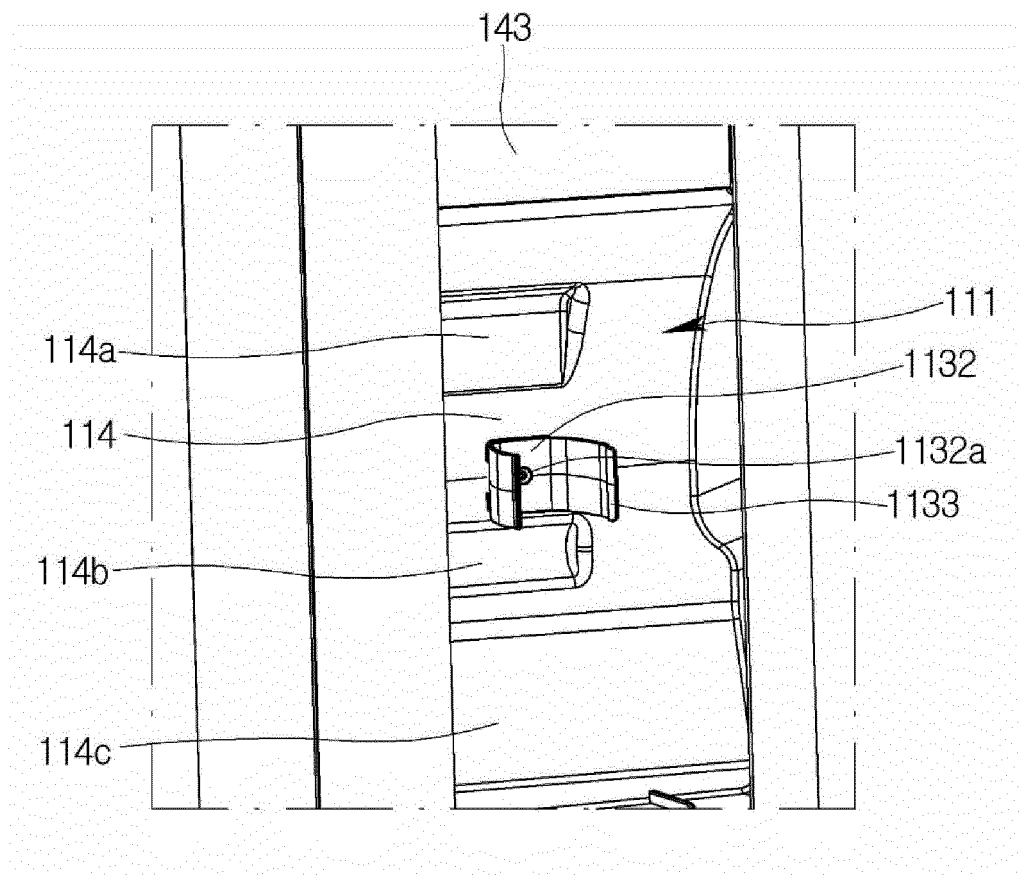
[FIG. 4]



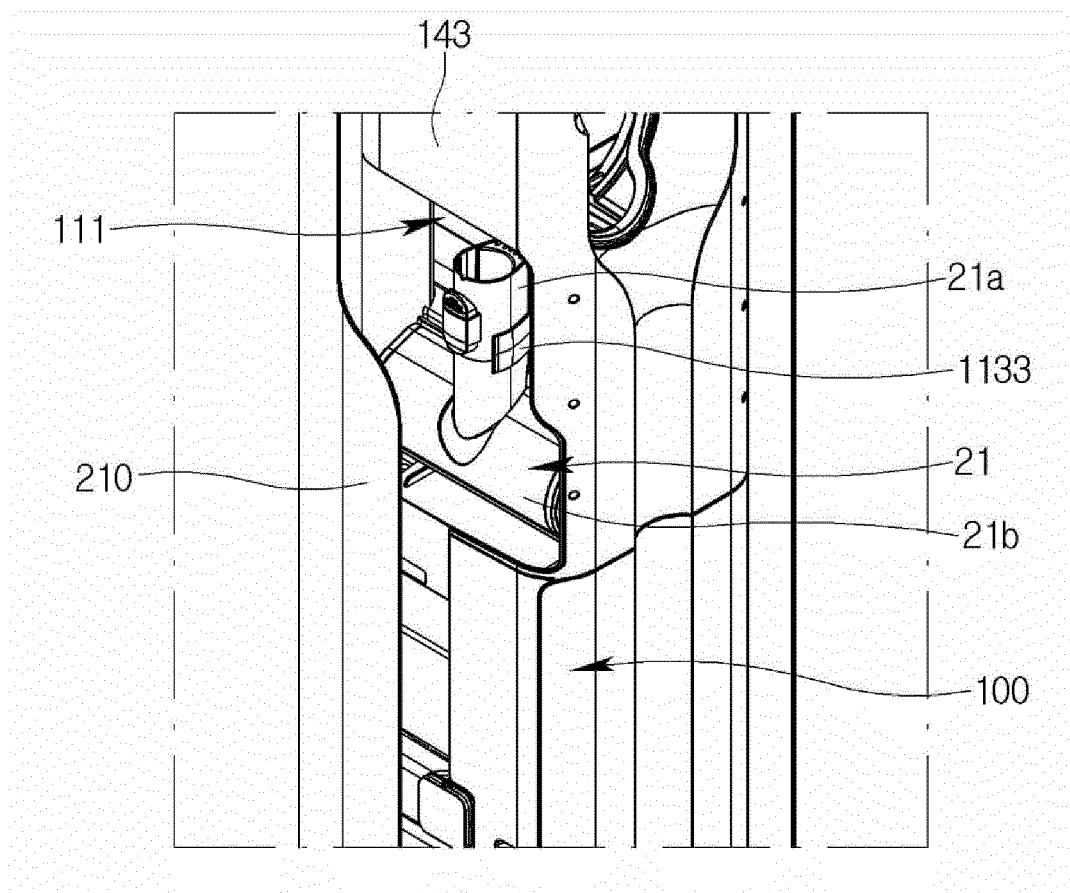
[FIG. 5]



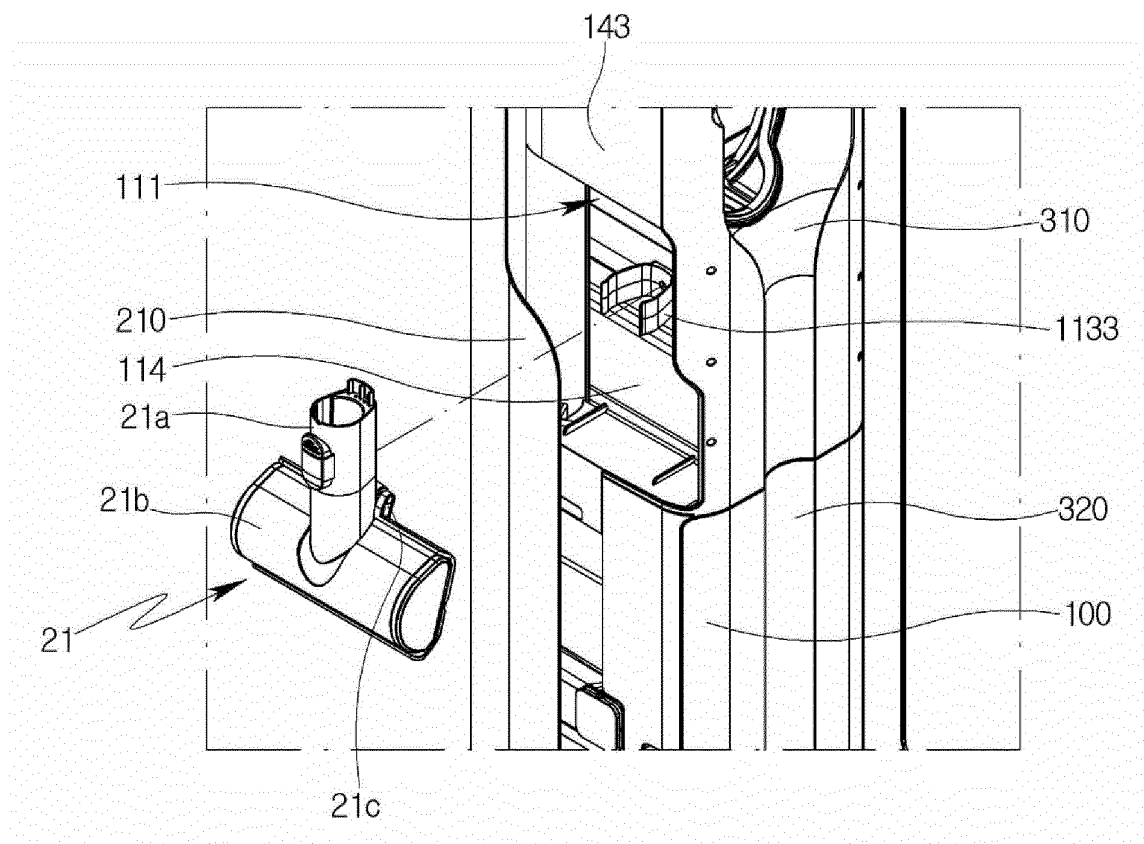
[FIG. 6]



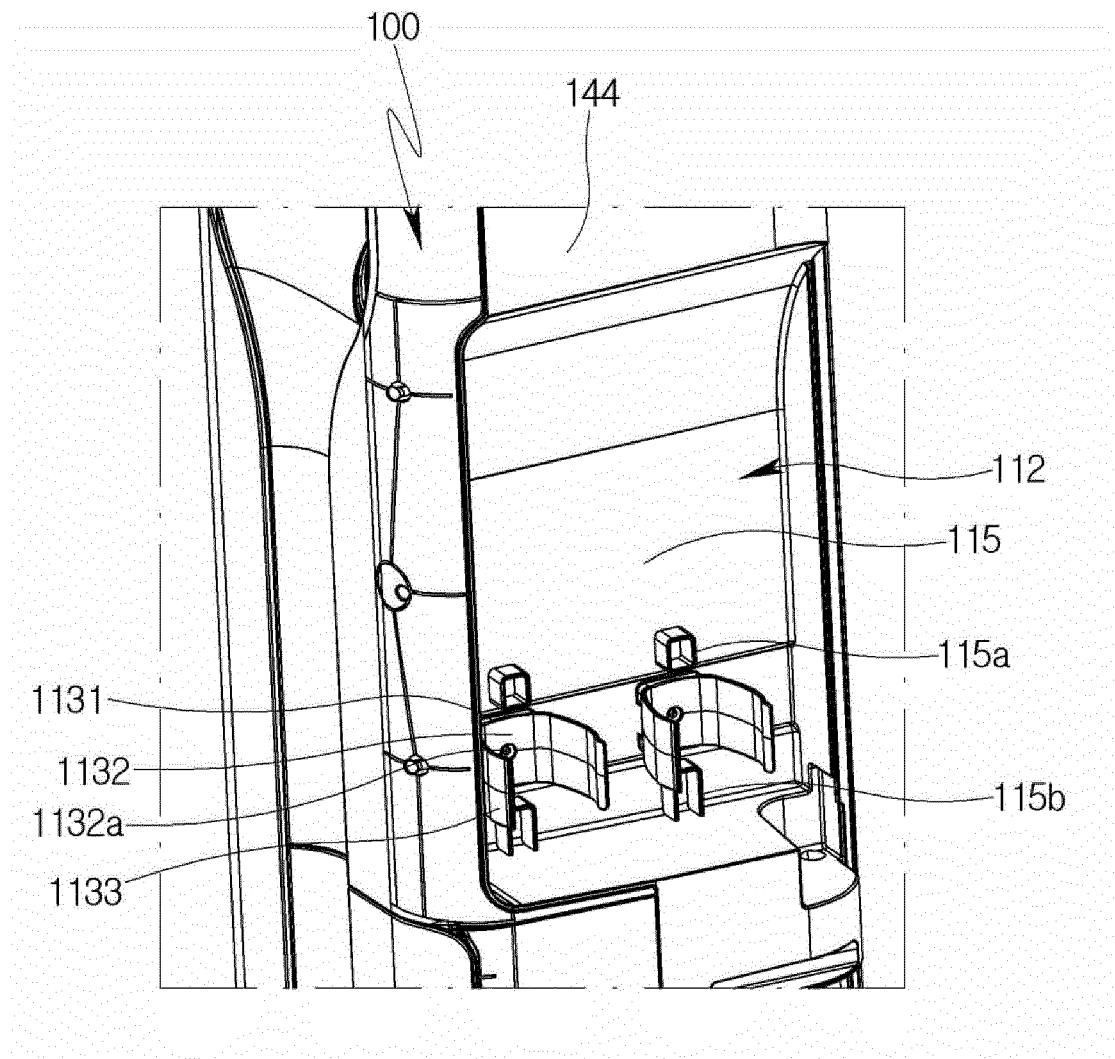
[FIG. 7a]



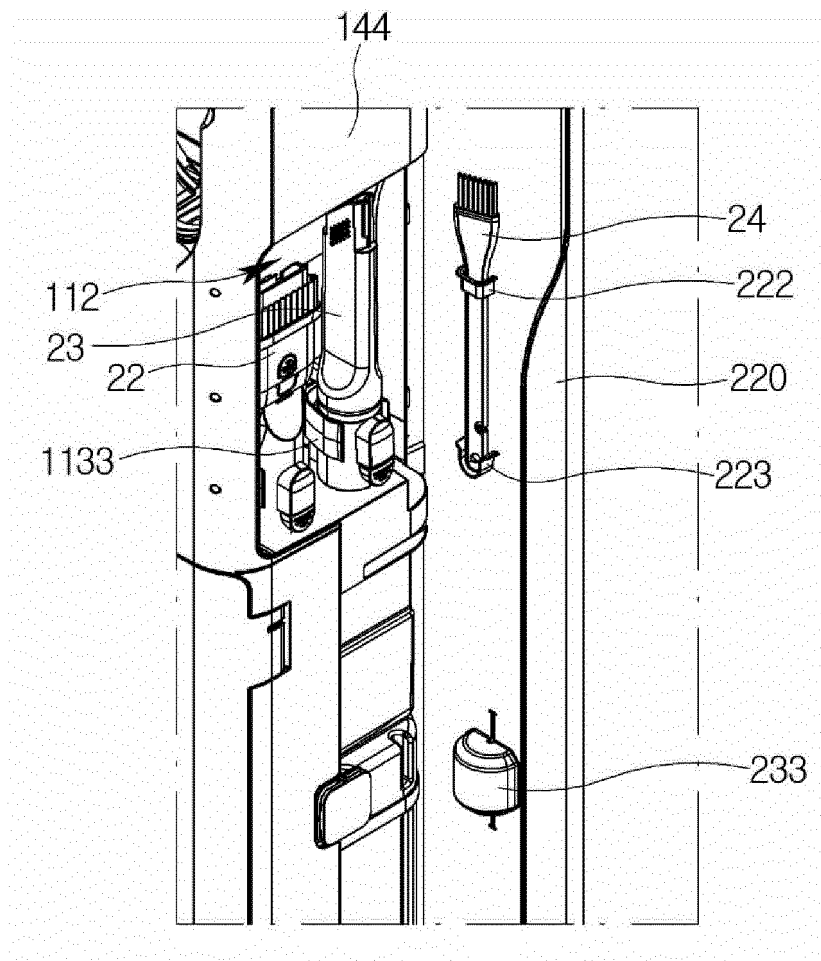
[FIG. 7b]



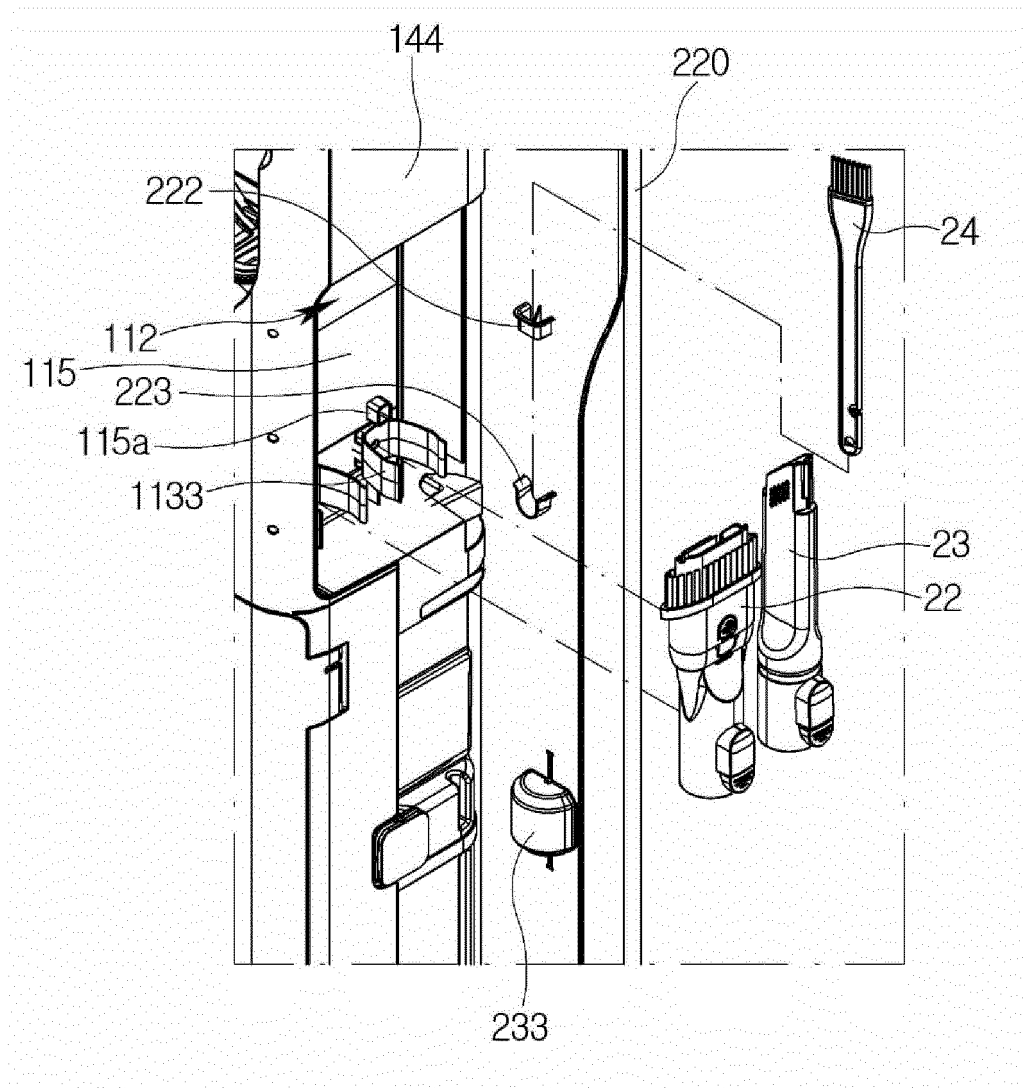
[FIG. 8]



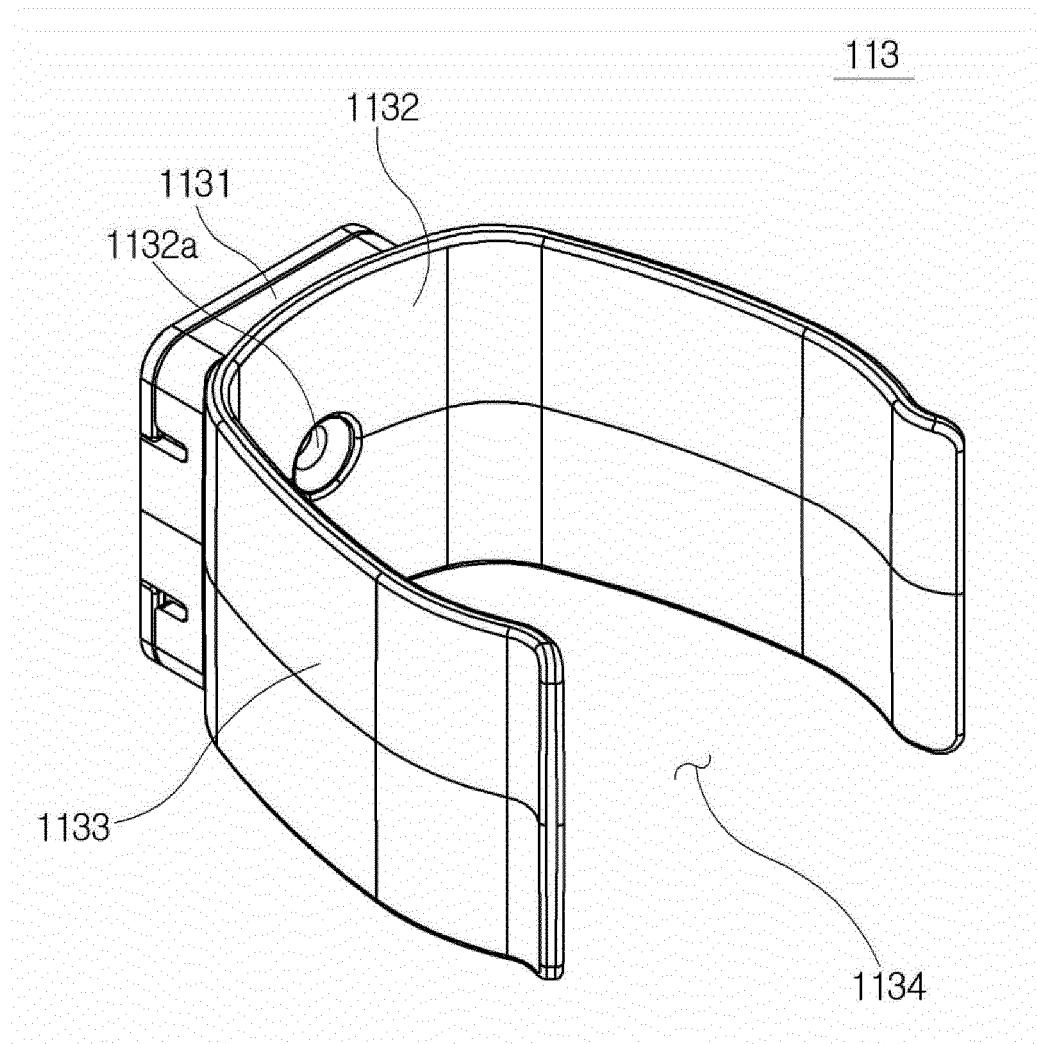
[FIG. 9a]



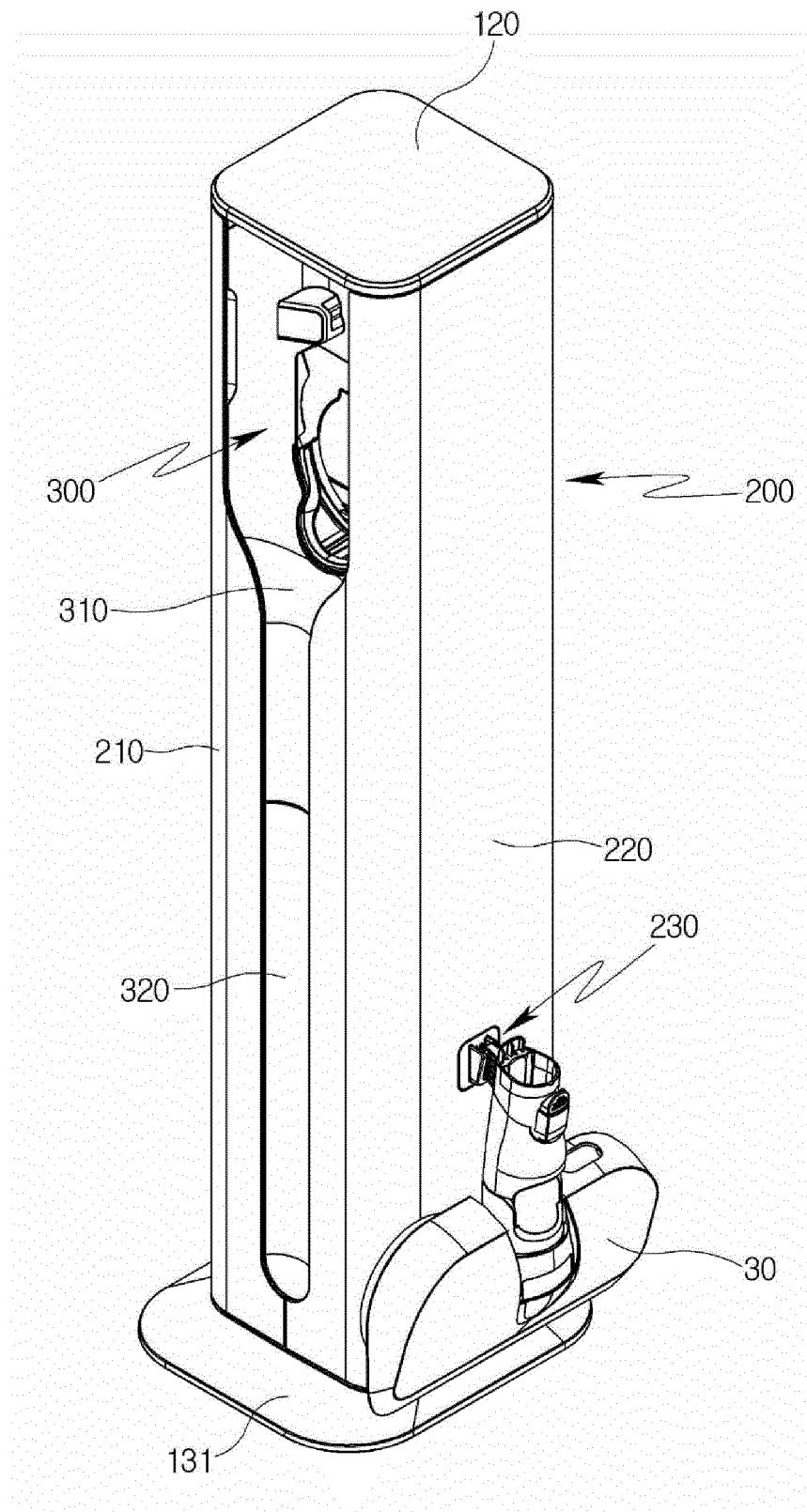
[FIG. 9b]



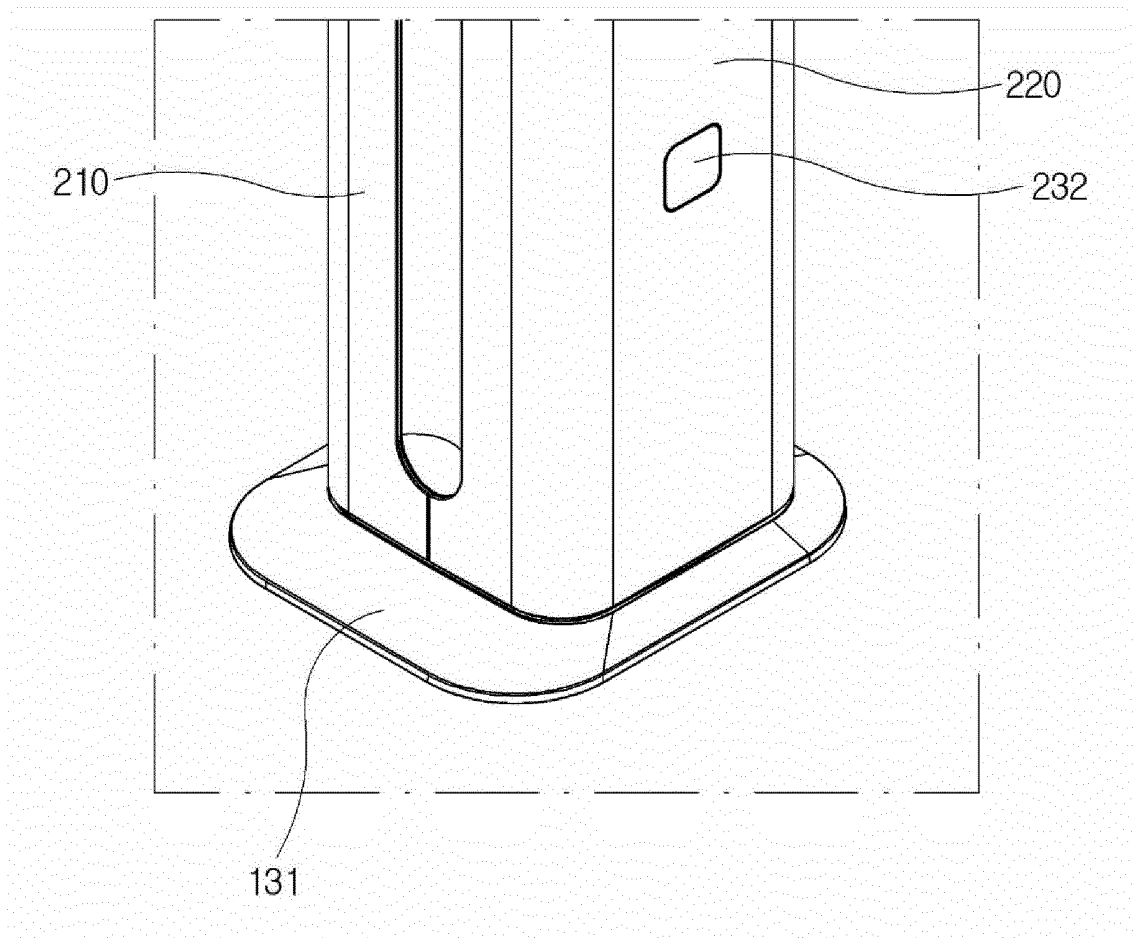
[FIG. 10]



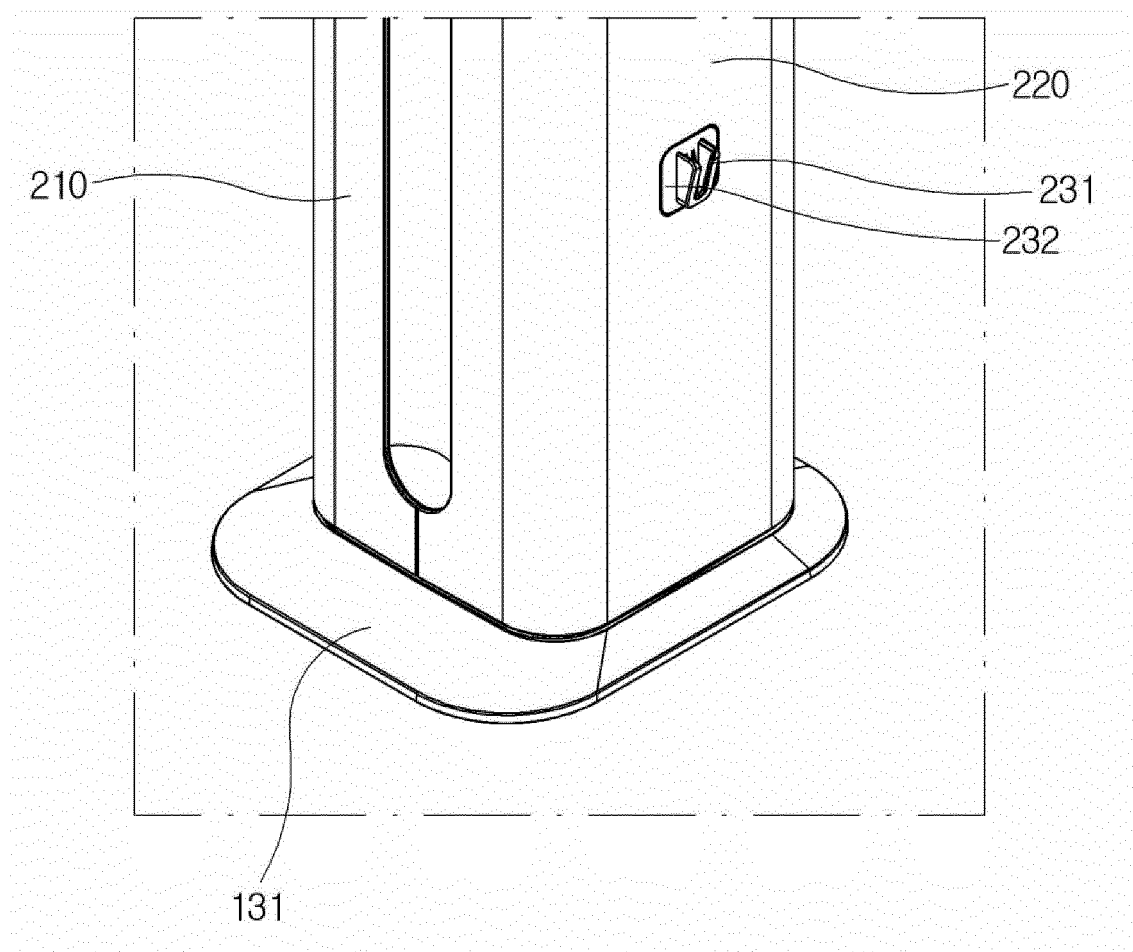
[FIG. 11]



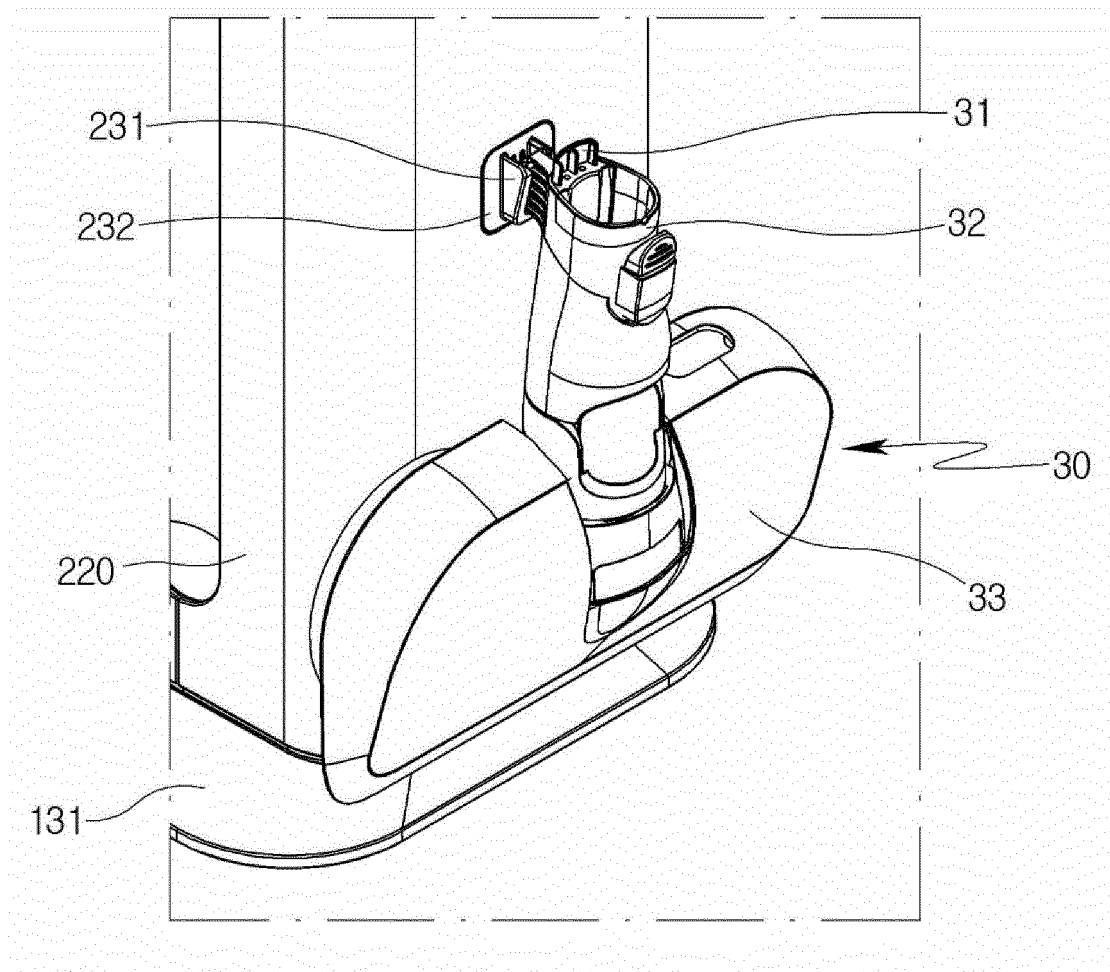
[FIG. 12]



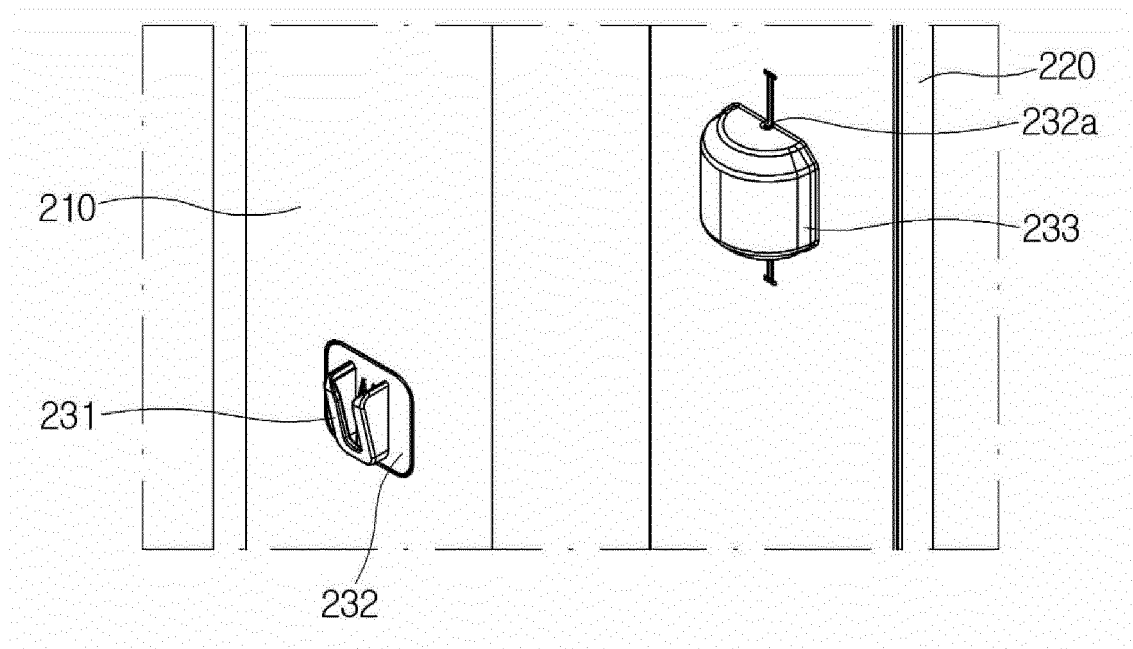
[FIG. 13]



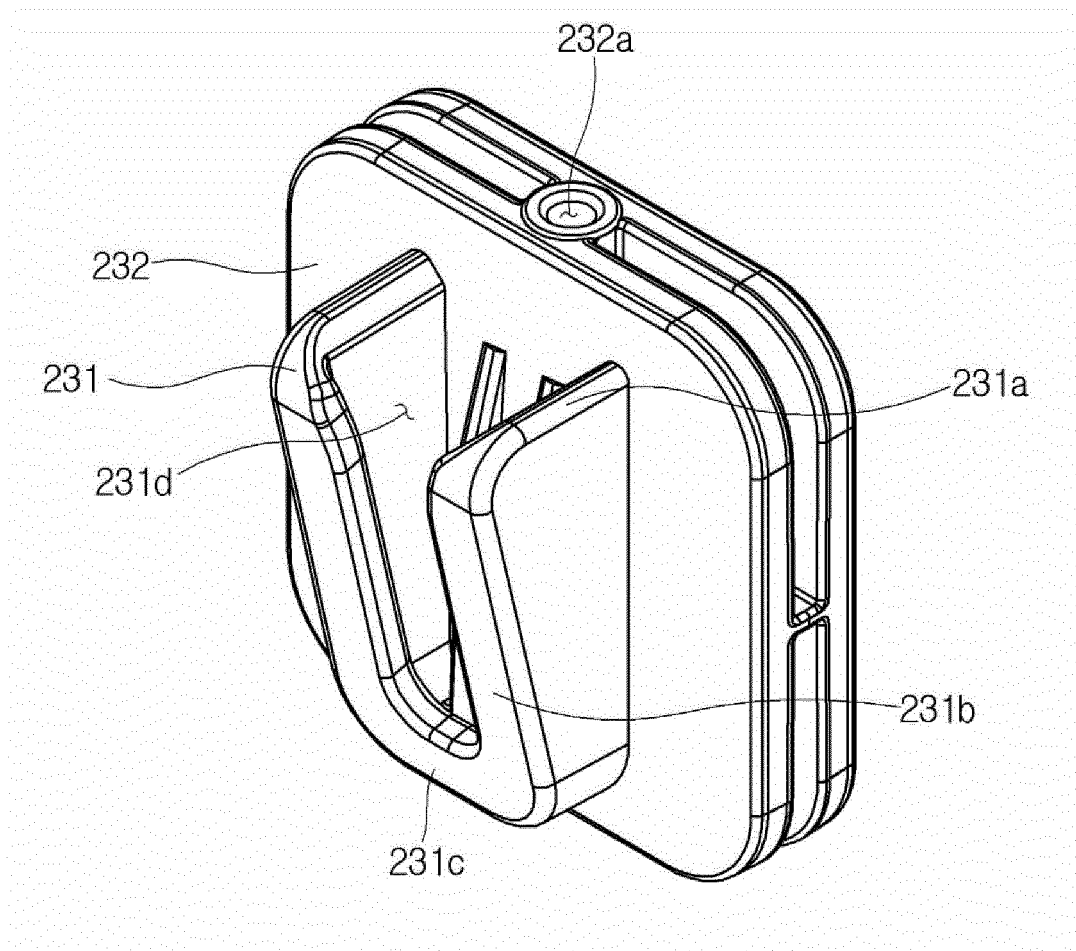
[FIG. 14]



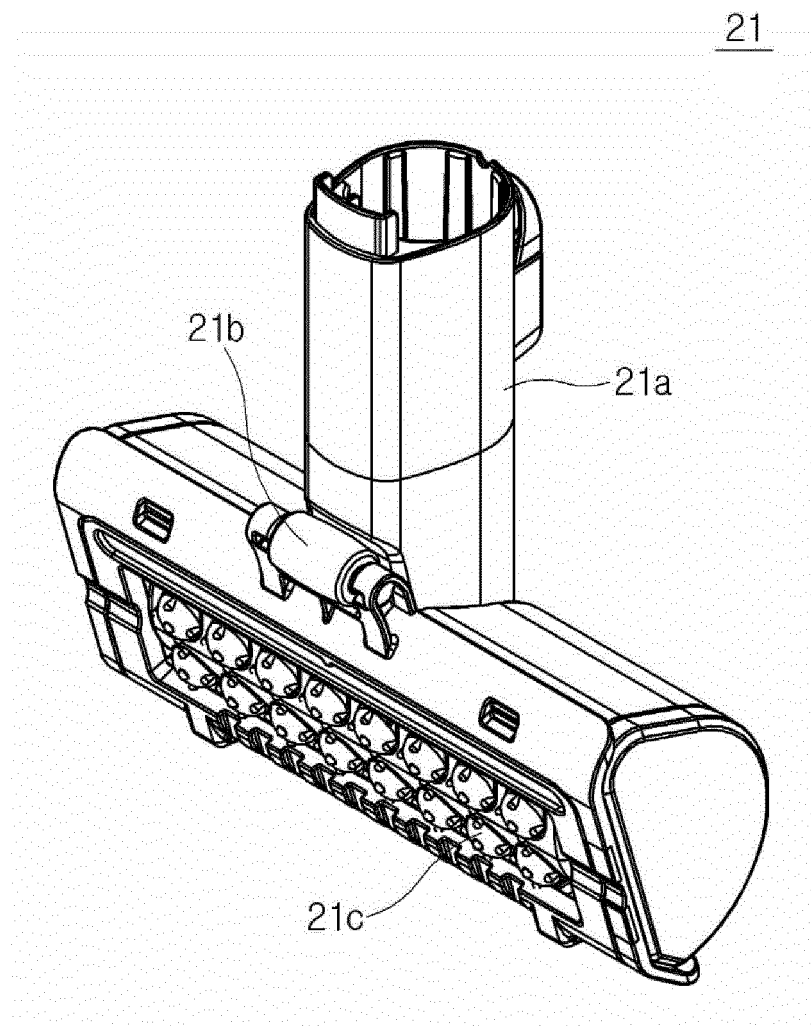
[FIG. 15]



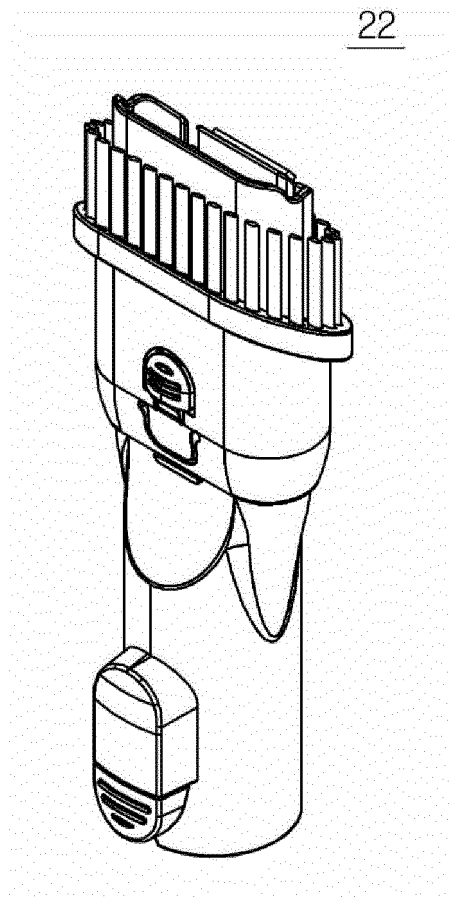
[FIG. 16]



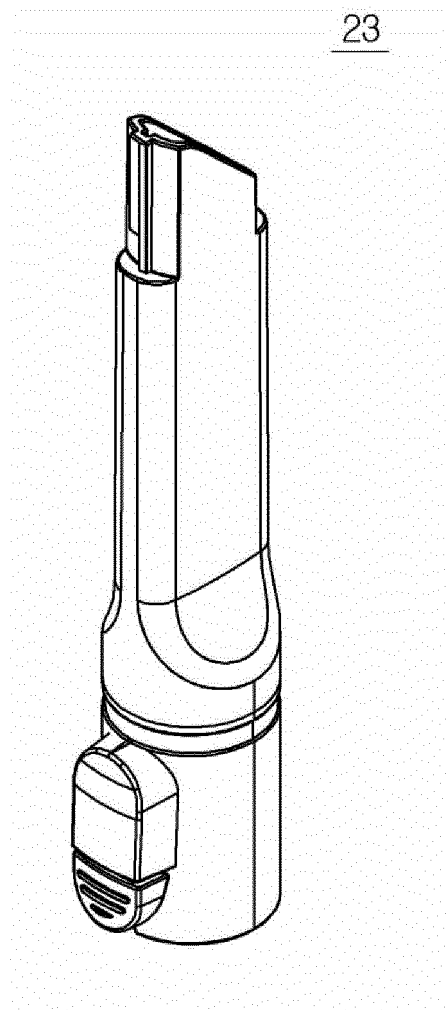
[FIG. 17]



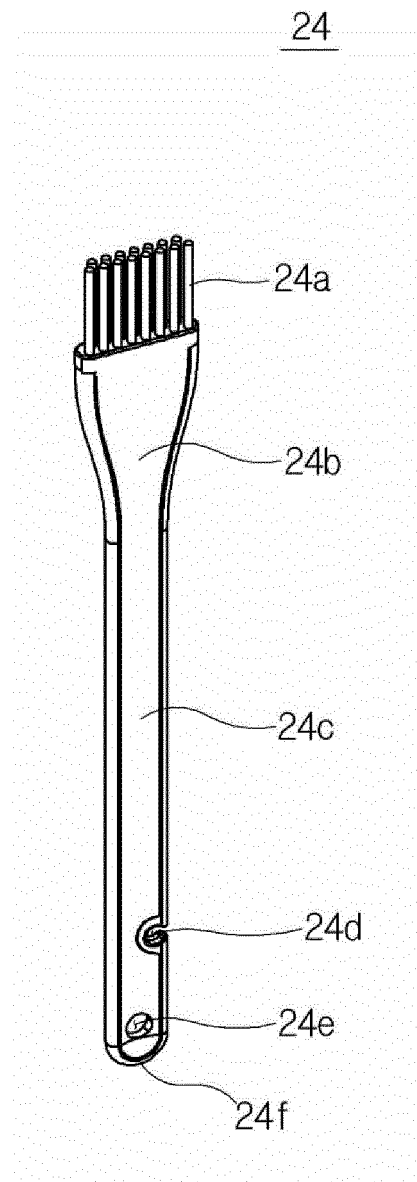
[FIG. 18]



[FIG. 19]



[FIG. 20]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2021/011801

A. CLASSIFICATION OF SUBJECT MATTER

A47L 9/00(2006.01); A47L 9/28(2006.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47L 9/00(2006.01); A47L 11/20(2006.01); A47L 5/24(2006.01); A47L 5/38(2006.01); A47L 9/28(2006.01);
B60N 3/00(2006.01); B60R 7/08(2006.01)

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(cleaner), 스테이션(station), 독(dock), 커버(cover), 악세서리(accessory),
도구(tool), 걸이(hook), 거치(hold)**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2020-0073966 A (SAMSUNG ELECTRONICS CO., LTD.) 24 June 2020 (2020-06-24) See paragraphs [0048]-[0066] and [0260] and figures 1-23.	1-19
Y	JP 2679353 B2 (MATSUSHITA ELECTRIC IND. CO., LTD.) 19 November 1997 (1997-11-19) See claim 1 and figures 1-4.	1-10,14-19
Y	JP 2012-192779 A (NIFCO INC.) 11 October 2012 (2012-10-11) See paragraphs [0019]-[0024] and figures 1-4.	11-13
Y	KR 10-2101696 B1 (LG ELECTRONICS INC.) 29 May 2020 (2020-05-29) See paragraphs [0082]-[0083] and figures 1-4.	12
A	WO 2019-166763 A1 (DYSON TECHNOLOGY LIMITED) 06 September 2019 (2019-09-06) See pages 5-8 and figures 1-7C.	1-19

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

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Date of the actual completion of the international search

21 December 2021

Date of mailing of the international search report

24 December 2021

Name and mailing address of the ISA/KR

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