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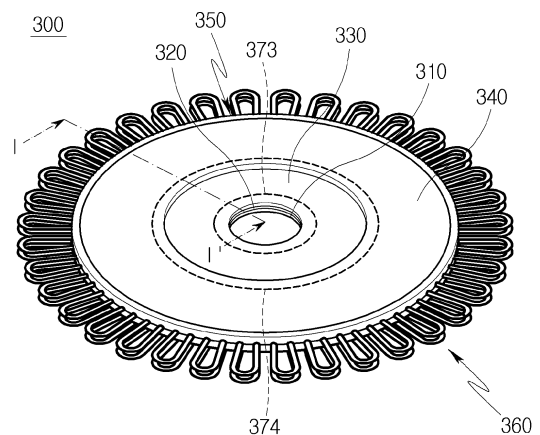
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(54) **FLOOR CLOTH FOR VACUUM CLEANER**

(57) The present disclosure relates to a mop for a cleaner, which is attached to a rotary plate of the cleaner and used to clean a floor surface, the mop including: a floor cleaning part configured to come into contact with the floor surface; a water absorbing part stacked on the floor cleaning part and configured to absorb supplied water and supply the water to the floor cleaning part; a water supply part stacked on the water absorbing part and configured to absorb water supplied from the cleaner and supply the water to the water absorbing part; an attachment part stacked on the water supply part and configured to be attached to a rotary plate of the cleaner; a coupling part provided in the form of a ring and having one side configured to surround the floor cleaning part and the other side configured to surround the attachment part; and a lateral cleaning part stacked on one side of the coupling part and protruding outward in a radial direction of the floor cleaning part. With this configuration, the mop may further include the lateral cleaning part protruding outward along the periphery of the floor cleaning part configured to clean the floor surface, thereby expanding the cleaning area and improving the cleaning performance.

[FIG. 4]



Description

[Technical Field]

[0001] The present disclosure relates to a mop for a cleaner, and more particularly, to a mop for a cleaner, which is attached to a rotary plate of the cleaner and used to clean a floor surface.

[Background Art]

[0002] A robot cleaner, which is mounted with a motor, various types of sensors, artificial intelligence (AI), and the like, may be configured to clean an area required to be cleaned while autonomously moving in the area.

[0003] The robot cleaner may be configured to suck dust or the like with a vacuum, sweep dust from the floor, or wipe a cleaning target surface using a mop.

[0004] As a document related to the robot cleaner, Korean Patent No. 1613446 (hereinafter, referred to as 'Patent Document 1') discloses 'Robot Cleaner and Method of Controlling the Same.' The robot cleaner according to Patent Document 1 includes a main body, a drive part, a first rotary member, and a second rotary member. In addition, the robot cleaner according to Patent Document 1 includes first and second cleaners including fabrics, mops, non-woven fabrics, brushes, and the like. The first cleaner is coupled to a first fixing member of the first rotary member, and the second cleaner is coupled to a second fixing member of the second rotary member.

[0005] According to Patent Document 1, the robot cleaner may remove foreign substances or the like adhering to the floor using friction, with the floor surface, generated when the first and second cleaners are rotated by the rotational motions of the first and second rotary members. When the frictional force with the floor surface is generated, the frictional force may be used as power for moving the robot cleaner. That is, Patent Document 1 discloses that the operation of cleaning the floor and the operation of moving the robot cleaner are simultaneously performed when the first and second cleaners rotate.

[0006] However, since the robot cleaner according to Patent Document 1 is configured such that the first and second cleaners are positioned inside a main body and wipe the floor while rotating, there is a problem in that the robot cleaner cannot clean an edge portion of an indoor area in which wall surfaces or pieces of furniture are disposed. That is, when the robot cleaner performs the cleaning operation while moving in a state of being in contact with the indoor wall surface, the first and second cleaners are spaced apart from the wall surface because the first and second cleaners are positioned inside the main body. As a result, there is a problem in that the robot cleaner cannot clean an edge portion of the wall surface.

[0007] Further, as a document related to a cleaning pad, Korean Patent No. 2010829 (hereinafter, referred

to as 'Patent Document 2') discloses 'Cleaning Pad using Water or Liquid Cleaning Agent.'

[0008] The cleaning pad according to Patent Document 2 further includes a twisted fiber portion protruding outward along a periphery of a cleaning layer and thus clean an edge portion of an indoor wall surface or a piece of furniture.

[0009] However, the twisted fiber portion of the cleaning pad according to Patent Document 2 is fastened in parallel with the cleaning layer while surrounding the periphery of the cleaning layer. Because the twisted fiber portion is disposed in parallel with the floor surface while the cleaning layer wipes the floor surface, there is a problem in that the cleaning layer is not well in contact with the floor surface, which causes a deterioration in cleaning efficiency.

[Documents of Related Art]

[Patent Documents]

[0010]

(Patent Document 1) Korean Patent No. 1613446 (April 12, 2016)

(Patent Document 2) Korean Patent No. 2010829 (August 8, 2019)

[DISCLOSURE]

[Technical Problem]

[0011] The present disclosure has been made in an effort to solve the above-mentioned problems in the related art, and an object of the present disclosure is to provide a mop for a cleaner, which further includes a lateral cleaning part protruding outward along a periphery of a floor cleaning part configured to clean a floor surface, thereby expanding a cleaning area inside and outside the cleaner.

[0012] Another object of the present disclosure is to provide a mop for a cleaner, in which a lateral cleaning part may be fastened to be inclined toward a floor surface so that the lateral cleaning part is in close contact with the floor surface, thereby improving cleaning performance implemented by the lateral cleaning part.

[0013] Still another object of the present disclosure is to provide a mop for a cleaner, in which a lateral cleaning part may have a plurality of cleaning members stacked and disposed in multiple stages in a height direction, thereby improving cleaning performance implemented by the lateral cleaning part.

[0014] Yet another object of the present disclosure is to provide a mop for a cleaner, in which cleaning members stacked in multiple stages may be disposed so that a spacing interval between the cleaning members increases outward, thereby increasing a contact area with a cleaning target and improving cleaning performance.

[Technical Solution]

[0015] In order to achieve the above-mentioned objects, a mop for a cleaner according to an exemplary embodiment of the present disclosure may further include a lateral cleaning part protruding outward along a periphery of a floor cleaning part configured to clean a floor surface, thereby expanding a cleaning area.

[0016] More specifically, the mop for a cleaner according to the embodiment of the present disclosure is attached to a rotary plate of the cleaner and used to clean a floor surface, and the mop for a cleaner includes: a floor cleaning part configured to come into contact with the floor surface; and a lateral cleaning part protruding outward along a periphery of the floor cleaning part and disposed to be inclined downward so that an end of the lateral cleaning part is positioned lower than the floor cleaning part.

[0017] Alternatively, the mop for a cleaner according to the embodiment of the present disclosure may include: a floor cleaning part configured to come into contact with a floor surface; and a lateral cleaning part protruding outward along a periphery of the floor cleaning part and disposed to be inclined toward the floor surface.

[0018] In this case, the lateral cleaning part may include cleaning members stacked on one another in two stages.

[0019] Further, the stacked cleaning members may be disposed to be spaced apart from one another at an outer side thereof, and the cleaning member disposed at a lower end may be disposed to be inclined downward so that an end of the cleaning member is positioned lower than the floor cleaning part. The lateral cleaning part has the plurality of cleaning members disposed in multiple stages, thereby improving cleaning performance implemented by the lateral cleaning part.

[0020] Further, the mop for a cleaner according to the embodiment of the present disclosure may include: a floor cleaning part configured to come into contact with the floor surface; a water absorbing part stacked on the floor cleaning part and configured to absorb supplied water and supply the water to the floor cleaning part; a water supply part stacked on the water absorbing part and configured to absorb water supplied from the cleaner and supply the water to the water absorbing part; an attachment part stacked on the water supply part and configured to be attached to a rotary plate of the cleaner; a coupling part provided in the form of a ring and having one side configured to surround the floor cleaning part and the other side configured to surround the attachment part; and a lateral cleaning part stacked on one side of the coupling part so as to be inclined toward the floor surface, fastened by stitching, and protruding outward in a radial direction of the floor cleaning part.

[0021] In this case, the lateral cleaning part may be fastened to the coupling part by stitching.

[0022] According to the mop for a cleaner according to the present disclosure, the lateral cleaning part may

be fastened to be inclined toward the floor surface so that the lateral cleaning part is in close contact with the floor surface, thereby improving the cleaning performance implemented by the lateral cleaning part.

[0023] To this end, by setting optimum stitching positions, the lateral cleaning part may be disposed to be inclined toward the floor surface in the state in which the lateral cleaning part is fastened to the coupling part.

[0024] More specifically, the stitching may include: first stitching provided to couple the lateral cleaning part, one side of the coupling part, the floor cleaning part, the water absorbing part, the water supply part, the attachment part, and the other side of the coupling part; and second stitching provided to couple the lateral cleaning part, the floor cleaning part, the water absorbing part, the water supply part, and the attachment part.

[0025] Alternately, the stitching may include: first stitching provided to couple the lateral cleaning part, one side of the coupling part, the floor cleaning part, the water absorbing part, the water supply part, the attachment part, and the other side of the coupling part; and second stitching provided to couple the lateral cleaning part, the floor cleaning part, the water absorbing part, the water supply part, the attachment part, and the other side of the coupling part.

[0026] The floor cleaning part may be manufactured by using superfine fiber and have a central opening that penetrates a center of the floor cleaning part.

[0027] The water absorbing part may have a central opening that penetrates a center of the water absorbing part. The water absorbing part may be made of polyurethane (PU) and coupled to the floor cleaning part by thermal bonding.

[0028] In this case, the water absorbing part may include: a stitching area surrounded by the coupling part; and a cleaning area provided to be thicker than the stitching area and configured to press the floor cleaning part so that the floor cleaning part is in close contact with the floor surface.

[0029] The water supply part may be manufactured by using superfine fiber and have a central opening that penetrates a center of the water supply part.

[0030] The attachment part may have a Velcro fastener so as to be attached to or detached from the rotary plate of the cleaner.

[0031] Further, the attachment part may have a central opening that penetrates a center of the attachment part. The central opening of the attachment part may be larger in diameter than the central opening formed in the water supply part.

[0032] With this configuration, the water supplied from the cleaner may be supplied to the water supply part exposed through the central opening of the attachment part.

[0033] The mop for a cleaner according to the embodiment of the present disclosure may include: a base member provided in the form of a ring and stacked on one side of the coupling part; and a plurality of cleaning members each provided in the form of a loop and fastened

along a periphery of the base member.

[0034] The lateral cleaning part may be configured such that the base member is fastened to the coupling part by stitching and the cleaning member is disposed to be inclined toward the floor surface.

[0035] Further, the base member may include: a first base portion fastened to the coupling part by the first stitching; and a second base portion having a smaller thickness than the first base portion, provided in the first base portion in a radial direction, and fastened to the coupling part by the second stitching.

[0036] In addition, the lateral cleaning part may be configured such that the cleaning members are stacked on one another in multiple stages and fastened to the base member.

[0037] When the cleaning members are stacked in multiple stages as described above, the lateral cleaning part may be configured such that a spacing interval between the stacked cleaning members increases in a direction away from the base member.

[0038] The water supply part, the water absorbing part, and the floor cleaning part may be additionally fastened in a central area by first auxiliary stitching.

[0039] The first auxiliary stitching may be formed around central openings formed in the water supply part, the water absorbing part, and the floor cleaning part.

[0040] The attachment part may be additionally fastened in a central area by second auxiliary stitching.

[0041] Further, the second auxiliary stitching may be formed around a central opening of the attachment part and penetrate the water supply part, the water absorbing part, and the floor cleaning part.

[Advantageous Effect]

[0042] The mop for a cleaner according to the present disclosure may further include the lateral cleaning part protruding outward along the periphery of the floor cleaning part configured to clean the floor surface, thereby expanding the cleaning area inside and outside the cleaner and improving the cleaning performance.

[0043] Further, according to the mop for a cleaner according to the present disclosure, the lateral cleaning part may be fastened to be inclined toward the floor surface so that the lateral cleaning part is in close contact with the floor surface, thereby improving the cleaning performance implemented by the lateral cleaning part.

[0044] In addition, according to the mop for a cleaner according to the present disclosure, the lateral cleaning part may have the plurality of cleaning members stacked and disposed in multiple stages in the height direction, thereby improving the cleaning performance implemented by the lateral cleaning part.

[0045] Further, according to the mop for a cleaner according to the present disclosure, the cleaning members stacked in multiple stages may be disposed so that the spacing interval between the cleaning members increases outward, thereby increasing the contact area with the

cleaning target and improving the cleaning performance.

[Description of Drawings]

5 [0046]

FIG. 1 is a perspective view schematically illustrating a robot cleaner to which a mop for a cleaner according to an embodiment of the present disclosure is attached.

FIG. 2 is an exploded perspective view schematically illustrating the robot cleaner illustrated in FIG. 1.

FIG. 3 is a perspective view schematically illustrating that rotary plates and the mops for a cleaner according to the embodiment of the present disclosure are separated from the robot cleaner illustrated in FIG. 1. FIG. 4 is a perspective view schematically illustrating the mop for a cleaner according to the embodiment of the present disclosure.

FIG. 5 is an exploded perspective view schematically illustrating the mop for a cleaner according to the embodiment of the present disclosure.

FIG. 6 is a schematic cross-sectional view taken along line I-I' in FIG. 4.

FIG. 7 is a schematic enlarged view of part A in FIG. 6.

FIG. 8 is a view illustrating part A in FIG. 6 and schematically illustrating that a lateral cleaning part is fastened by stitching in accordance with a first embodiment.

FIG. 9 is a view illustrating part A in FIG. 6 and schematically illustrating that a lateral cleaning part is fastened by stitching in accordance with a second embodiment.

[Mode for Invention]

[0047] Hereinafter, exemplary embodiments of the present disclosure will be described in detail with reference to the accompanying drawings.

[0048] The present disclosure may be variously modified and may have various embodiments, and particular embodiments illustrated in the drawings will be specifically described below. The description of the embodiments is not intended to limit the present disclosure to the particular embodiments, but it should be interpreted that the present disclosure is to cover all modifications, equivalents and alternatives falling within the spirit and technical scope of the present disclosure.

[0049] In the description of the present disclosure, the terms such as "first" and "second" may be used to describe various components, but the components should not be limited by the terms. These terms are used only to distinguish one component from another component. For example, a first component may be named a second component, and similarly, the second component may also be named the first component, without departing from the scope of the present disclosure.

[0050] The term "and/or" may include any and all combinations of a plurality of the related and listed items.

[0051] When one component is described as being "coupled" or "connected" to another component, it should be understood that one component can be coupled or connected directly to another component, and an intervening component can also be present between the components. When one component is described as being "coupled directly to" or "connected directly to" another component, it should be understood that no intervening component is present between the components.

[0052] The terms used herein is used for the purpose of describing particular embodiments only and is not intended to limit the present disclosure. Singular expressions may include plural expressions unless clearly described as different meanings in the context.

[0053] The terms "comprises," "comprising," "includes," "including," "containing," "has," "having" or other variations thereof are inclusive and therefore specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0054] Unless otherwise defined, all terms used herein, including technical or scientific terms, may have the same meaning as commonly understood by those skilled in the art to which the present disclosure pertains. The terms such as those defined in a commonly used dictionary may be interpreted as having meanings consistent with meanings in the context of related technologies and may not be interpreted as ideal or excessively formal meanings unless explicitly defined in the present application.

[0055] Further, the following embodiments are provided to more completely explain the present disclosure to those skilled in the art, and shapes and sizes of elements illustrated in the drawings may be exaggerated for a more apparent description.

[0056] A mop for a cleaner according to an embodiment of the present disclosure is attached to a cleaner when being used with the cleaner. The mop for a cleaner may be used by being attached to a robot cleaner or a stick cleaner that a user directly manipulates.

[0057] Hereinafter, a robot cleaner to which the mop for a cleaner according to the embodiment of the present disclosure is attached will be specifically described with reference to FIGS. 1 to 3.

[0058] FIGS. 1 and 2 are a perspective view and an exploded perspective view schematically illustrating the robot cleaner to which the mop for a cleaner according to the embodiment of the present disclosure is attached, and FIG. 3 is a perspective view schematically illustrating that rotary plates and the mops for a cleaner according to the embodiment of the present disclosure are separated from the robot cleaner illustrated in FIG. 1.

[0059] Referring to FIGS. 1 to 3, the robot cleaner 1 includes a body 100, a first rotary plate 10, a second

rotary plate 20, and cleaner mops 300. Further, the robot cleaner 1 may further include a control part (not illustrated), a bumper 190, a first sensor 200, and a second sensor 210 so as to autonomously move.

[0060] The control part may be configured to control operations of first and second actuators 160 and 170 to be described below based on preset information or real-time information. The robot cleaner 1 may be provided with a storage medium that stores an application program for the control operation of the control part. The control part may be configured to control the robot cleaner 1 by executing the application program based on information inputted to the robot cleaner 1 and information outputted from the robot cleaner 1.

[0061] The bumper 190 is coupled along the rim of the body 100 and configured to move relative to the body 100. For example, the bumper 190 may be coupled to the body 100 so as to be reciprocally movable in a direction toward the center of the body 100.

[0062] The bumper 190 may be coupled along a part of the rim of the body 100 or coupled along the entire rim of the body 100.

[0063] The bumper 190 may be equal to or lower in height than the body 100. Therefore, an obstacle positioned at a comparatively low position may collide with the bumper 190, and the bumper 190 may detect the obstacle.

[0064] The first sensor 200 may be coupled to the body 100 and configured to detect a motion (relative movement) of the bumper 190 relative to the body 100. The first sensor 200 may be a microswitch, a photo-interrupter, a tact switch, or the like.

[0065] When the bumper 190 of the robot cleaner 1 comes into contact with an obstacle, the control part may control the robot cleaner 1 to allow the robot cleaner 1 to avoid the obstacle. The control part may control the operation of the first actuator 160 and/or the second actuator 170 based on information detected by the first sensor 200. For example, when the bumper 190 comes into contact with an obstacle while the robot cleaner 1 moves, the first sensor 121 may recognize a position at which the bumper 190 comes into contact with the obstacle, and the control part may control the operations of the first actuator 160 and/or the second actuator 170 so that the robot cleaner 1 departs from the contact position.

[0066] The second sensor 210 may be coupled to the body 100 and configured to detect a relative distance to an obstacle. The second sensor 210 may be a distance sensor.

[0067] When a distance between the robot cleaner 1 and the obstacle is a predetermined value or less based on information detected by the second sensor 210, the control part may control the operations of the first actuator 160 and/or the second actuator 170 so that the movement direction of the robot cleaner 1 is changed or the robot cleaner 1 moves away from the obstacle.

[0068] The body 100 may define an entire external shape of the robot cleaner 1 or may be provided in the

form of a frame. Components constituting the robot cleaner 1 may be coupled to the body 100, and some of the components constituting the robot cleaner 1 may be accommodated in the body 100. The body 100 may be divided into a lower body 100a and an upper body 100b. The components of the robot cleaner 1 may be provided in a space defined by coupling the lower body 100a and the upper body 100b.

[0069] The body 100 may be configured such that a width (or diameter) in a horizontal direction (X-axis and Y-axis directions) thereof is larger than a height in a vertical direction (Z-axis direction) thereof. The body 100 may provide an advantageous structure that lowers a center of gravity of the robot cleaner 1 to assist a stable operation and avoid an obstacle while the robot cleaner moves (travels).

[0070] The body 100 may have various shapes such as a circular shape, an elliptical shape, or a quadrangular shape when viewed from above or below.

[0071] The first rotary plate 10 has a predetermined area and is provided in the form of a flat plate, a flat frame, or the like. The first rotary plate 10 coupled to the body 100 may be parallel to the floor surface or inclined with respect to the floor surface.

[0072] The first rotary plate 10 may be provided in the form of a circular plate, and a bottom surface of the first rotary plate 10 may be approximately circular.

[0073] The first rotary plate 10 may entirely have a rotationally symmetrical shape.

[0074] The first rotary plate 10 may include a first central plate 11, a first outer peripheral plate 12, and first spokes 13.

[0075] The first central plate 11 defines a center of the first rotary plate 10 and is rotatably coupled to the body 100. The first central plate 11 may be coupled to the lower portion of the body 100. The first central plate 11 may be coupled to the body 100 in such a way that an upper surface of the first central plate 11 is directed toward the bottom surface of the body 100.

[0076] A rotary shaft 15 of the first rotary plate 10 may be provided in a direction that penetrates the center of the first central plate 11. In addition, the rotary shaft 15 of the first rotary plate 10 may be provided in a direction orthogonal to the floor surface or inclined at a predetermined angle with respect to the direction orthogonal to the floor surface.

[0077] The first outer peripheral plate 12 is spaced apart from the first central plate 11 and disposed to surround the first central plate 11.

[0078] The first spokes 13 connect the first central plate 11 and the first outer peripheral plate 12. The first spokes 13 are provided in plural and repeatedly disposed in a circumferential direction of the first central plate 11. The first spokes 13 may be arranged at an equal interval. A plurality of holes 14 penetratively formed in the vertical direction is provided between the first spokes 13, and a liquid (e.g., water) discharged from a water supply tube 240 to be described below may be delivered to the clean-

er mop 300 through the holes 14.

[0079] The second rotary plate 20 has a predetermined area and is provided in the form of a flat plate, a flat frame, or the like. The second rotary plate 20 is laid approximately horizontally, such that a width (or a diameter) in the horizontal direction is sufficiently larger than a height in the vertical direction thereof. The second rotary plate 20 coupled to the body 100 may be parallel to the floor surface or inclined with respect to the floor surface.

[0080] The second rotary plate 20 may be provided in the form of a circular plate, and a bottom surface of the second rotary plate 20 may be approximately circular.

[0081] The second rotary plate 20 may entirely have a rotationally symmetrical shape.

[0082] The second rotary plate 20 may include a second central plate 21, a second outer peripheral plate 22, and second spokes 23.

[0083] The second central plate 21 defines a center of the second rotary plate 20 and is rotatably coupled to the body 100. The second central plate 21 may be coupled to the lower portion of the body 100. The second central plate 21 may be coupled to the body 100 in such a way that an upper surface of the second central plate 21 is directed toward the bottom surface of the body 100.

[0084] A rotary shaft 25 of the second rotary plate 20 may be provided in a direction that penetrates the center of the second central plate 21. In addition, the rotary shaft 25 of the second rotary plate 20 may be provided in a direction orthogonal to the floor surface or inclined at a predetermined angle with respect to the direction orthogonal to the floor surface.

[0085] The second outer peripheral plate 22 is spaced apart from the second central plate 21 and disposed to surround the second central plate 21.

[0086] The second spokes 23 connect the second central plate 21 and the second outer peripheral plate 22. The second spokes 23 are provided in plural and repeatedly disposed in a circumferential direction of the second central plate 21. The second spokes 23 may be arranged at an equal interval. A plurality of holes 24 penetratively formed in the vertical direction is provided between the second spokes 23, and a liquid (e.g., water) discharged from the water supply tube 240 to be described below may be delivered to the cleaner mop 300 through the holes 24.

[0087] In the robot cleaner 1, the second rotary plate 20 may be identical to the first rotary plate 10 or the second rotary plate 20 and the first rotary plate 10 may be provided symmetrically. When the first rotary plate 10 is positioned at a left side of the robot cleaner 1 based on the front side toward which the robot cleaner 1 moves, the second rotary plate 20 may be positioned at a right side of the robot cleaner 1. In this case, the first rotary plate 10 and the second rotary plate 20 may be vertically symmetric.

[0088] A bottom surface of the cleaner mop 300, which is directed toward the floor, has a predetermined area, and the cleaner mop 300 has a flat shape. The cleaner

mop 300 is configured such that a width (or a diameter) in the horizontal direction thereof is sufficiently larger than a height in the vertical direction thereof. When the cleaner mop 300 is coupled to the body 100, the bottom surface of the cleaner mop 300 may be parallel to the floor surface B or inclined with respect to the floor surface B.

[0089] The bottom surface of the cleaner mop 300 may be approximately circular.

[0090] The cleaner mop 300 may entirely have a rotationally symmetrical shape.

[0091] The cleaner mop 300 may be made of various materials capable of wiping the floor while being in contact with the floor. To this end, the bottom surface of the cleaner mop 300 may have a woven fabric, a knitted fabric, a non-woven fabric, and/or a brush having a predetermined area.

[0092] In the robot cleaner 1, the cleaner mops 300 are attached to or detached from the bottom surfaces of the first and second rotary plates 10 and 20. The cleaner mops 300 are coupled to the first and second rotary plates 10 and 20 and rotate together with the first and second rotary plates 10 and 20. The cleaner mops 300 may be coupled to and in close contact with the bottom surfaces of the first and second outer peripheral plates 12 and 22 or coupled to and in close contact with the bottom surfaces of the first and second central plates 11 and 21 and the bottom surfaces of the first and second outer peripheral plates 12 and 22.

[0093] The cleaner mops 300 may be attached to or detached from the first and second rotary plates 10 and 20 by various devices and various methods. As an embodiment, at least a part of the cleaner mop 300 may be coupled to each of the first and second rotary plates 10 and 20 by being caught by or fitted with each of the first and second rotary plates 10 and 20. As another embodiment, a separate device such as a clamp may be provided to couple the cleaner mop 300 to each of the first and second rotary plates 10 and 20. As still another embodiment, a pair of fastening devices (specific examples of the fastening devices include a pair of magnets configured to apply attractive forces to each other, a pair of Velcro fasteners configured to be coupled to each other, a pair of buttons (a female button and a male button) configured to be coupled to each other, or the like), which is configured to be coupled to or separated from each other, may be provided. One fastening device may be fixed to the cleaner mop 300, and the other fastening device may be fixed to each of the first and second rotary plates 10 and 20.

[0094] When the cleaner mop 300 is coupled to each of the first and second rotary plates 10 and 20, the cleaner mop 300 may overlap each of the first and second rotary plates 10 and 20. Alternately, the cleaner mop 300 may be coupled to each of the first and second rotary plates 10 and 20 in such a way that a center of the cleaner mop 300 is coincident with a center of each of the first and second rotary plates 10 and 20.

[0095] The robot cleaner 1 may rectilinearly move

along the floor surface. For example, the robot cleaner 1 may rectilinearly move forward (in the X-axis direction) while performing the cleaning operation and may rectilinearly move rearward to avoid an obstacle or a cliff.

[0096] The robot cleaner 1 may move while rotating in a left-right direction (Y-axis direction) as the first and second rotary plates 10 and 20 rotate at different rotational speeds. That is, when the rotational speed of the first rotary plate 10 is higher than the rotational speed of the second rotary plate 20 or when the first rotary plate 10 rotates but the second rotary plate 20 does not rotate, the robot cleaner 1 may move while rotating in the right direction to the direction in which the robot cleaner 1 moves. Alternately, when the rotational speed of the second rotary plate 20 is higher than the rotational speed of the first rotary plate 10 or when the second rotary plate 20 rotates but the first rotary plate 10 does not rotate, the robot cleaner 1 may move while rotating in the left direction to the direction in which the robot cleaner 1 moves.

[0097] The robot cleaner 1 includes the first actuator 160, the second actuator 170, a battery 220, a water container 230, and a water supply tube 240.

[0098] The first actuator 160 is coupled to the body 100 and configured to rotate the first rotary plate 10.

[0099] The first actuator 160 may include a first casing 161, a first motor 162, and one or more first gears 163.

[0100] The first casing 161 is fixedly coupled to the body 100 and supports components constituting the first actuator 160.

[0101] The first motor 162 may be an electric motor.

[0102] The plurality of first gears 163 meshes with each other and rotates together. The plurality of first gears 163 connects the first motor 162 and the first rotary plate 10 and transmits rotational power from the first motor 162 to the first rotary plate 10. Therefore, the first rotary plate 10 rotates when a rotary shaft of the first motor 162 rotates.

[0103] The second actuator 170 is coupled to the body 100 and configured to rotate the second rotary plate 20.

[0104] The second actuator 170 may include a second casing 171, a second motor 172, and one or more second gears 173.

[0105] The second casing 171 is fixedly coupled to the body 100 and supports components constituting the second actuator 170.

[0106] The second motor 172 may be an electric motor.

[0107] The plurality of second gears 173 meshes with each other and rotates together. The plurality of second gears 173 connects the second motor 172 and the second rotary plate 20 and transmits rotational power from the second motor 172 to the second rotary plate 20. Therefore, the second rotary plate 20 rotates when a rotary shaft of the second motor 172 rotates.

[0108] As described above, in the robot cleaner 1, the first rotary plate 10 and the cleaner mop 300 may be rotated by the operation of the first actuator 160, and the second rotary plate 20 and the cleaner mop 300 may be rotated by the operation of the second actuator 170.

[0109] The first actuator 160 may be disposed directly on the first rotary plate 10. This configuration may minimize a loss of power transmitted from the first actuator 160 to the first rotary plate 10. In addition, a load of the first actuator 160 may be applied to the first rotary plate 10, such that the cleaner mop 300 may perform the mopping operation while generating sufficient friction with the floor.

[0110] In addition, the second actuator 170 may be disposed directly on the second rotary plate 20. This configuration may minimize a loss of power transmitted from the second actuator 170 to the second rotary plate 20. In addition, a load of the second actuator 170 may be applied to the second rotary plate 20, such that the cleaner mop 300 may perform the mopping operation while generating sufficient friction with the floor.

[0111] The second actuator 170 and the first actuator 160 may be symmetric (vertically symmetric).

[0112] The battery 220 is coupled to the body 100 and configured to supply power to the other components constituting the robot cleaner 1. The battery 220 may supply power to the first actuator 160 and the second actuator 170. In particular, the battery 220 supplies power to the first motor 162 and the second motor 172.

[0113] The battery 220 may be charged with external power. To this end, a charging terminal for charging the battery 220 may be provided at one side of the body 100 or provided on the battery 220.

[0114] In the robot cleaner 1, the battery 220 may be coupled to the body 100.

[0115] The water container 230 is provided in the form of a container having an internal space that stores therein a liquid such as water. The water container 230 may be fixedly coupled to the body 100 or detachably coupled to the body 100.

[0116] The water supply tube 240 is provided in the form of a tube or a pipe and connected to the water container 230 so that the liquid in the water container 230 may flow through the inside of the water supply tube 240. An end of the water supply tube 240, which is opposite to the side at which the water supply tube 240 is connected to the water container 230, is provided above the first rotary plate 10 and the second rotary plate 20, such that the liquid in the water container 230 may be supplied to the cleaner mops 300.

[0117] In the robot cleaner 1, the water supply tube 240 may be provided in a shape having two tube portions diverged from a single tube portion. In this case, an end of one diverged tube portion may be positioned above the first rotary plate 10, and an end of the other diverged tube portion may be positioned above the second rotary plate 20.

[0118] In the robot cleaner 1, a separate pump may be provided to move the liquid through the water supply tube 240.

[0119] With this configuration, in the robot cleaner 1, when the liquid stored in the water container 230 is sprayed to the first and second rotary plate 20 from above

through the water supply tube 240, the liquid may be supplied to the cleaner mops 300 through the holes 14 and 24 formed in the first and second rotary plates 10 and 20. The liquid may be periodically supplied to prevent the cleaner mop 300 from being dried, thereby improving the cleaning performance.

[0120] Hereinafter, the mop for a cleaner according to the specific embodiment of the present disclosure will be described with reference to the accompanying drawings.

[0121] The cleaner mop 300 according to the embodiment of the present disclosure is used by being attached to the above-mentioned rotary plate of the robot cleaner. Of course, the application of the cleaner mop to the robot cleaner is just an example, and the cleaner mop may be attached to various devices, such as a stick cleaner configured to be directly manipulated by a user, which is capable of performing the cleaning operation.

[0122] FIGS. 4 and 5 are a perspective view and an exploded perspective view schematically illustrating the mop for a cleaner according to the embodiment of the present disclosure, and FIG. 6 is a schematic cross-sectional view taken along line I-I' in FIG. 4. FIGS. 7 to 9 are enlarged views schematically illustrating part A in FIG. 6.

[0123] Referring to FIGS. 4 to 9, the cleaner mop 300 according to the embodiment of the present disclosure includes a floor cleaning part 310, a water absorbing part 320, a water supply part 330, an attachment part 340, a coupling part 350, and a lateral cleaning part 360.

[0124] The floor cleaning part 310 may be in contact with the floor surface to clean the floor surface.

[0125] The floor cleaning part 310 has a circular or polygonal shape and may have a central opening 311 that penetrates a center of the floor cleaning part 310. The floor cleaning part 310 may be manufactured by using superfine fiber (microfiber) to effectively wipe the floor.

[0126] The water absorbing part 320 may be stacked on the floor cleaning part 310 and configured to absorb the water supplied from the cleaner and supply the water to the floor cleaning part 310.

[0127] The water absorbing part 320 has a circular or polygonal shape and may have a central opening 321 that penetrates a center of the water absorbing part 320. The water absorbing part 320 may have the same size as the floor cleaning part 310 and thus be stacked on the floor cleaning part 310 so as to overlap the floor cleaning part 310.

[0128] The water absorbing part 320 may be made of polyurethane (PU) and coupled to the floor cleaning part 310 by thermal bonding. When the water absorbing part 320 is made of polyurethane, the water absorbing part 320 may absorb and retain a predetermined amount of water. Further, since the water absorbing part 320 has elasticity, the water absorbing part 320 may bring the floor cleaning part 310 into close contact with the floor surface.

[0129] Further, referring to FIG. 8, the water absorbing part 320 may be divided into a stitching area 322 surrounded by the coupling part 350, and a cleaning area

323 provided to be thicker than the stitching area 322 and configured to press the floor cleaning part 310 so that the floor cleaning part 310 is in close contact with the floor surface.

[0130] Because the stitching area 322 needs to be stacked on and fastened to other components by stitching, the stitching area 322 has a relatively small thickness.

[0131] Further, the cleaning area 323 protrudes toward the floor surface and is provided to be thicker than the stitching area 322. Therefore, the cleaning area 323 may absorb and retain a larger amount of water and maintain a flat cleaning surface of the floor cleaning part 310 while preventing the cleaning surface from being distorted.

[0132] The water supply part 330 may be stacked on the water absorbing part 320 and configured to absorb the water supplied from the cleaner and supply the water to the water absorbing part 320.

[0133] The water supply part 330 has a circular or polygonal shape and may have a central opening 331 that penetrates a center of the water supply part 330. The water supply part 330 may have the same size as the water absorbing part 320 and thus be stacked on the water absorbing part 320 so as to overlap the water absorbing part 320.

[0134] Further, the water supply part 330 may be made of the same material as the floor cleaning part 310. For example, the water supply part may be manufactured by using superfine fiber. Of course, the material of the water supply part 330 is not limited thereto, and the water supply part 330 may be made of any material as long as the water supply part 330 may absorb the water supplied from the cleaner and supply the water to the water absorbing part 320.

[0135] The attachment part 340 may be stacked on the water supply part 330 and attached to the rotary plate to the cleaner.

[0136] The attachment part 340 has a circular or polygonal shape and may have a central opening 341 that penetrates a center of the attachment part 340. The attachment part 340 may have the same size as the water supply part 330 and thus be stacked on the water supply part 330 so as to overlap the water supply part 330.

[0137] The central opening 341, which penetrates the center of the attachment part 340, may be larger in diameter than the central opening 331 formed in the water supply part 330. This is to supply the water, supplied from the cleaner, directly to the water supply part 330 exposed through the central opening 341 of the attachment part 340.

[0138] Further, the attachment part 340 may be manufactured to have a Velcro fastener so as to be attached to or detached from the rotary plate of the cleaner. For example, one of the pair of Velcro fasteners, which has hooks, may be fastened to the rotary plate of the cleaner, and the Velcro fastener, which has loops, may be attached to the attachment part 340. On the contrary, one of the pair of Velcro fasteners, which has loops, may be

fastened to the rotary plate of the cleaner, and the Velcro fastener, which has hooks, may be attached to the attachment part 340. Of course, the present disclosure is not limited to the configuration in which the attachment part 340 has the Velcro fastener, and the attachment part 340 may have any component as long as the attachment part 340 may be attached to or detached from the rotary plate of the cleaner.

[0139] The coupling part 350 may be provided in the form of a ring and configured such that one side 351 thereof surrounds the floor cleaning part 310 and the other side 352 surrounds the attachment part 340. For example, the coupling part 350 may have a cross-section having two opposite ends bent inward, i.e., a cross-section having a 'C' shape.

[0140] With this configuration, the coupling part 350 may be disposed to surround all the floor cleaning part 310, the water absorbing part 320, the water supply part 330, and the attachment part 340 which are stacked. In this case, one side 351 of the coupling part 350 may be disposed to overlap a predetermined area of a circumference at a radial outer end of the floor cleaning part 310, and the other side 352 of the coupling part 350 may be disposed to overlap a predetermined area of a circumference at a radial outer end of the attachment part 340.

[0141] Further, the coupling part 350, together with the lateral cleaning part 360 to be described below, may be fastened, by stitching, to the floor cleaning part 310, the water absorbing part 320, the water supply part 330, and the attachment part 340 which are stacked inside the coupling part 350.

[0142] The coupling part 350 may be made of a non-woven fabric. Of course, the present disclosure is not limited thereto, and the coupling part 350 may be made of any material as long as the coupling part 350 may be fastened to the stacked components by stitching and maintain predetermined strength.

[0143] In addition, since the cleaning area 323 of the water absorbing part 320 protrudes, the coupling part 350 may be positioned at a position higher than a position of the central area in which the floor cleaning part 310 is in contact with the floor surface P, such that it is possible to prevent damage caused by abrasion of the stitching caused by the friction with the floor surface.

[0144] Further, the water supply part 330, the water absorbing part 320, and the floor cleaning part 310 may be additionally fastened by first auxiliary stitching 373.

[0145] The first auxiliary stitching 373 may be formed around the central openings 331, 321, and 311 formed in the water supply part 330, the water absorbing part 320, and the floor cleaning part 310.

[0146] The radially outer peripheries of the water supply part 330, the water absorbing part 320, and the floor cleaning part 310 are fastened by stitching by the coupling part 350. However, since the water supply part 330, the water absorbing part 320, and the floor cleaning part

310 are not coupled to one another in the central area, rotational friction or torsion may occur between the components when the mop rotates. Therefore, the first auxiliary stitching 373 may be applied to additionally fasten the components in the central area, thereby improving the coupling force between the components.

[0147] Further, the attachment part 340 may also be fastened additionally in the central area by the second auxiliary stitching 374.

[0148] The second auxiliary stitching 374 may be formed around the central opening 341 of the attachment part 340 and penetrate the water supply part 330, the water absorbing part 320, and the floor cleaning part 310.

[0149] The attachment part 340 is configured to be attached to or detached from the rotary plate of the cleaner. Since the attachment part 340 is periodically attached and detached, a repetitive load is applied to the attachment part 340 during the process of attaching and detaching the attachment part 340.

[0150] Therefore, the attachment part 340 may be damaged or separated from the coupling part 350 due to the repetitive load periodically applied. Therefore, second auxiliary stitching 374 may be additionally formed to increase a fastening force. In this case, in order to further increase the fastening force, the second auxiliary stitching 374 may be provided to fasten the attachment part 340, the water supply part 330, the water absorbing part 320, and the floor cleaning part 310 while penetrating the attachment part 340, the water supply part 330, the water absorbing part 320, and the floor cleaning part 310.

[0151] The lateral cleaning part 360 may be stacked on one side 351 of the coupling part 350 and protrude radially outward from the floor cleaning part. Since the lateral cleaning part 360 protrudes outward from the floor cleaning part 310, the robot cleaner may effectively clean the floor surface and an edge portion of a sidewall or a piece of furniture.

[0152] The lateral cleaning part 360 may be fastened to the coupling part 350 by stitching. In this case, the stitching may be performed multiple times in the radial direction.

[0153] For example, the stitching may be formed in two lines in the radial direction, i.e., the first stitching 371 may be formed at an outer side in the radial direction and the second stitching 372a and 372b may be formed at an inner side in the radial direction.

[0154] In this case, the first stitching 371 may be provided to couple the lateral cleaning part 360, one side 351 of the coupling part 350, the floor cleaning part 310, the water absorbing part 320, the water supply part 330, the attachment part 340, and the other side 352 of the coupling part 350.

[0155] Further, the second stitching 372a and 372b may be formed by two embodiments.

[0156] Referring to FIG. 8, the second stitching 372a according to the first embodiment may be formed to couple the lateral cleaning part 360, the floor cleaning part 310, the water absorbing part 320, the water supply part

330, and the attachment part 340. That is, unlike the first stitching 371, the second stitching 372a may be formed without sewing the coupling part 350.

[0157] When the second stitching 372a is formed as described above, the portion having the second stitching 372a may be relatively smaller in thickness than the portion having the first stitching 371. Therefore, an inner end of the lateral cleaning part 360 may be coupled and inserted at a higher position in the height direction, the lateral cleaning part 360 may be disposed to be inclined toward the floor surface. Therefore, the lateral cleaning part 360 may be effectively in contact with the floor surface, thereby improving the cleaning efficiency.

[0158] Referring to FIG. 9, the second stitching 372b according to the second embodiment may be formed to couple the lateral cleaning part 360, the floor cleaning part 310, the water absorbing part 320, the water supply part 330, the attachment part 340, and the other side 352 of the coupling part 350.

[0159] When the second stitching 372b is formed as described above, the portion having the second stitching 372a may be relatively smaller in thickness than the portion having the first stitching 371. Therefore, an inner end of the lateral cleaning part 360 may be coupled and inserted at a higher position in the height direction, the lateral cleaning part 360 may be disposed to be inclined toward the floor surface. Therefore, the lateral cleaning part 360 may be effectively in contact with the floor surface, thereby improving the cleaning efficiency.

[0160] Referring to FIG. 7, in comparison with the second stitching 372b, when the second stitching 372c couples the lateral cleaning part 360, one side 351 of the coupling part 350, the floor cleaning part 310, the water absorbing part 320, the water supply part 330, the attachment part 340, and the other side 352 of the coupling part 350, like the first stitching 371, the lateral cleaning part 360 may be disposed to be parallel to the floor surface P. In this case, since the position of the coupling part 350 is higher than the position of the floor surface P, the lateral cleaning part 360 is not well in contact with the floor surface P when the lateral cleaning part 360 is disposed in parallel with the floor surface P in the state in which the lateral cleaning part 360 is fastened to the coupling part 350, and as a result, the cleaning efficiency deteriorates.

[0161] Therefore, as illustrated in FIGS. 8 and 9, since the lateral cleaning part 360 may be inclined toward the floor surface P by the second stitching 372a according to the first embodiment and the second stitching 372b according to the second embodiment, and the lateral cleaning part 360 may be in effective close contact with the floor surface P, thereby improving the cleaning efficiency.

[0162] For example, the lateral cleaning part 360 may include a base member 361 provided in the form of a ring and stacked on one side 351 of the coupling part 350, and a plurality of cleaning members 362 each provided in the form of a loop and fastened along a periphery of

the base member 361. That is, in the lateral cleaning part 360, the plurality of cleaning members 362 each having a loop shape may be fastened radially along the periphery of the base member 361 having a ring shape. In this case, the base member 361 may be fastened to the coupling part 350 by stitching, and the cleaning members 362 may be disposed inclined toward the floor surface P.

[0163] Further, the base member 361 may be divided into two areas having different thicknesses and thus include a first base portion 361a and a second base portion 361b.

[0164] More specifically, the first base portion 361a is fastened to the coupling part 350 by the first stitching 371, and the second base portion 361b provided inside in the radial direction of the first base portion 361a and fastened to the coupling part 350 by the second stitching 372a and 372b.

[0165] In this case, the second base portion 361b may have a smaller thickness than the first base portion 361a. Therefore, since the second base portion 361b has a smaller thickness than the first base portion 361a, the second base portion 361b may be pulled by the second stitching 372a and 372b when the second base portion 361b is fastened by the second stitching 372a and 372b. Therefore, the first base portion 361a may be positioned at a higher position, and the cleaning member 362 may be easily disposed to be inclined toward the floor surface P.

[0166] Further, the plurality of cleaning members 362 may be stacked in the height direction, such that the plurality of cleaning members 362 may be fastened, in multiple stages, to the base member 361.

[0167] For example, as illustrated in FIGS. 8 and 9, the cleaning members 362 may be disposed in two stages in the height direction.

[0168] With this configuration, the floor cleaning part 310 is disposed to be inclined toward the floor surface P by the second stitching 372a and 372b, such that the stacked cleaning members 362 may be disposed in such a way that the spacing interval between the cleaning members 362 increases in a direction away from the base member 361. Therefore, as the interval between the vertically stacked cleaning members 362 increases, the contact area with the floor surface P and the edge portion of the wall surface or the piece of furniture may increase, thereby further improving the cleaning efficiency.

[0169] Since the lateral cleaning part 360 protrudes outward along the periphery of the floor cleaning part 310, the cleaning area may be expanded, and particularly, an edge or gap portion may be effectively cleaned to improve the cleaning performance during the process of cleaning the floor surface using the cleaner mop 300 according to the embodiment of the present disclosure.

[0170] In addition, by setting optimum stitching positions, the lateral cleaning part 360 may be disposed to be inclined toward the floor surface in the state in which the lateral cleaning part 360 is fastened to the coupling part 350. Therefore, the lateral cleaning part may be in

effective contact with the floor surface, and the cleaning operation may be effectively performed with the higher close-contact force, thereby improving the cleaning performance.

[0171] While the present disclosure has been described with reference to the specific embodiments, the specific embodiments are only for specifically explaining the present disclosure, and the present disclosure is not limited to the specific embodiments. It is apparent that the present disclosure may be modified or altered by those skilled in the art without departing from the technical spirit of the present disclosure.

[0172] All the simple modifications or alterations to the present disclosure fall within the scope of the present disclosure, and the specific protection scope of the present disclosure will be defined by the appended claims.

[Description of Reference Numerals]

[0173]

1: Robot cleaner
100: Body
10: First rotary plate
20: Second rotary plate
300: Mop for cleaner
310: Floor cleaning part
320: Water absorbing part
330: Water supply part
340: Attachment part
350: Coupling part
360: Lateral cleaning part
361: Base member
362: Cleaning member
371: First stitching
372a, 372b: Second stitching
373: First auxiliary stitching
374: Second auxiliary stitching

Claims

1. A mop for a cleaner, the mop comprising:

a floor cleaning part configured to come into contact with a floor surface; and
a lateral cleaning part protruding outward along a periphery of the floor cleaning part and disposed to be inclined toward the floor surface.

2. The mop of claim 1, further comprising:

a coupling part provided in the form of a ring and provided to surround the floor cleaning part, wherein the lateral cleaning part is stacked on the coupling part and fastened by stitching.

3. The mop of claim 2, wherein the stitching comprises:
 first stitching provided to couple the lateral cleaning part, one side of the coupling part, the floor cleaning part, and the other side of the coupling part; and
 second stitching provided to couple the lateral cleaning part and the floor cleaning part. 5
4. The mop of claim 3, wherein the lateral cleaning part comprises:
 a base member provided in the form of a ring and stacked on one side of the coupling part; and
 a plurality of cleaning members each provided in the form of a loop and fastened along a periphery of the base member. 10 15
5. The mop of claim 4, wherein the lateral cleaning part is configured such that the base member is fastened to the coupling part by stitching and the cleaning member is disposed to be inclined toward the floor surface. 20
6. The mop of claim 4, wherein the base member comprises:
 a first base portion fastened by the first stitching; and
 a second base portion having a smaller thickness than the first base portion, provided in the first base portion in a radial direction, and fastened by the second stitching. 25 30
7. The mop of claim 4, wherein the lateral cleaning part is configured such that the cleaning members are stacked on one another in multiple stages and fastened to the base member. 35
8. The mop of claim 4, wherein the lateral cleaning part is configured such that the cleaning members are stacked on one another in multiple stages and fastened to the base member, and a spacing interval between the stacked cleaning members increases in a direction away from the base member. 40 45
9. The mop of claim 2, wherein the stitching comprises:
 first stitching provided to couple the lateral cleaning part, one side of the coupling part, the floor cleaning part, and the other side of the coupling part; and
 second stitching provided to couple the lateral cleaning part, the floor cleaning part, and the other side of the coupling part. 50 55
10. The mop of claim 2, further comprising:
 a water absorbing part stacked on the floor cleaning part and configured to absorb supplied water and supply the water to the floor cleaning part.
11. The mop of claim 10, wherein the water absorbing part, together with the floor cleaning part, is provided to be surrounded by the coupling part and fastened by the stitching.
12. The mop of claim 10, further comprising:
 a water supply part stacked on the water absorbing part and configured to absorb water supplied from the cleaner and supply the water to the water absorbing part.
13. The mop of claim 12, wherein the water absorbing part, together with the water absorbing part, is provided to be surrounded by the coupling part and fastened by the stitching.
14. The mop of claim 13, wherein the water absorbing part comprises:
 a stitching area surrounded by the coupling part; and
 a cleaning area provided to be thicker than the stitching area and configured to press the floor cleaning part so that the floor cleaning part is in close contact with the floor surface.
15. The mop of claim 12, further comprising:
 an attachment part stacked on the water supply part and configured to be attached to a rotary plate of the cleaner.
16. The mop of claim 15, wherein the attachment part, together with the water supply part, is provided to be surrounded by the coupling part and fastened by the stitching.
17. The mop of claim 1, further comprising:
 a water absorbing part stacked on the floor cleaning part and configured to absorb supplied water and supply the water to the floor cleaning part;
 a water supply part stacked on the water absorbing part and configured to absorb water supplied from the cleaner and supply the water to the water absorbing part; and
 an attachment part stacked on the water supply part and configured to be attached to a rotary plate of the cleaner.
18. The mop of claim 17, wherein the water supply part, the water absorbing part, and the floor cleaning part are additionally fastened in a central area by first

auxiliary stitching.

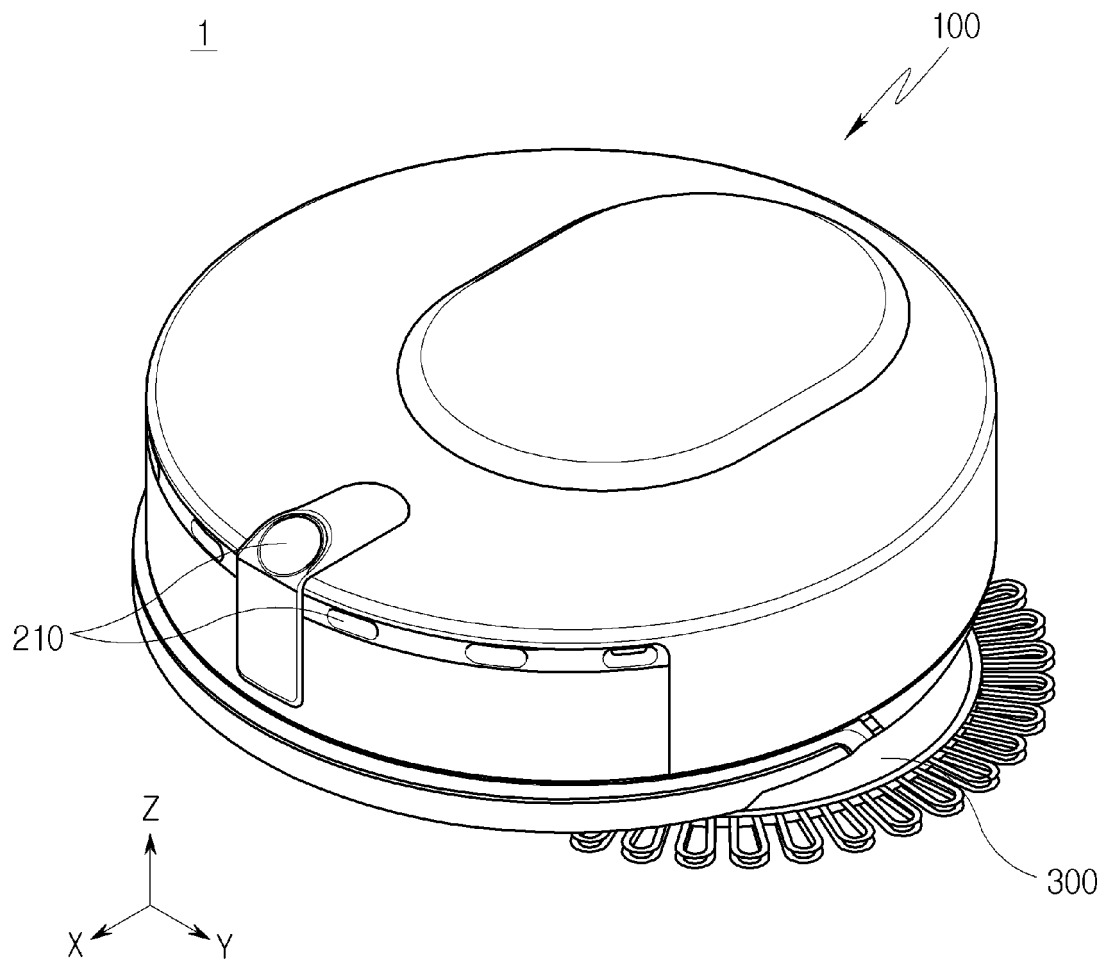
19. The mop of claim 18, wherein the first auxiliary stitching is formed around central openings formed in the water supply part, the water absorbing part, and the floor cleaning part. 5
20. The mop of claim 17, wherein the attachment part is additionally fastened in a central area by second auxiliary stitching. 10
21. The mop of claim 20, wherein the second auxiliary stitching is formed around a central opening of the attachment part and penetrates the water supply part, the water absorbing part, and the floor cleaning part. 15
22. The mop of claim 1, wherein the lateral cleaning part comprises: 20
- cleaning members stacked on one another in two stages, wherein the cleaning members are disposed to be spaced apart from one another at an outer side thereof, and 25
- wherein the cleaning member disposed at a lower end is disposed to be inclined downward so that an end of the cleaning member is positioned lower than the floor cleaning part. 30
23. A mop for a cleaner, the mop comprising:
- a floor cleaning part configured to come into contact with a floor surface; and 35
- a lateral cleaning part protruding outward along a periphery of the floor cleaning part and disposed to be inclined downward so that an end of the lateral cleaning part is positioned lower than the floor cleaning part. 40

45

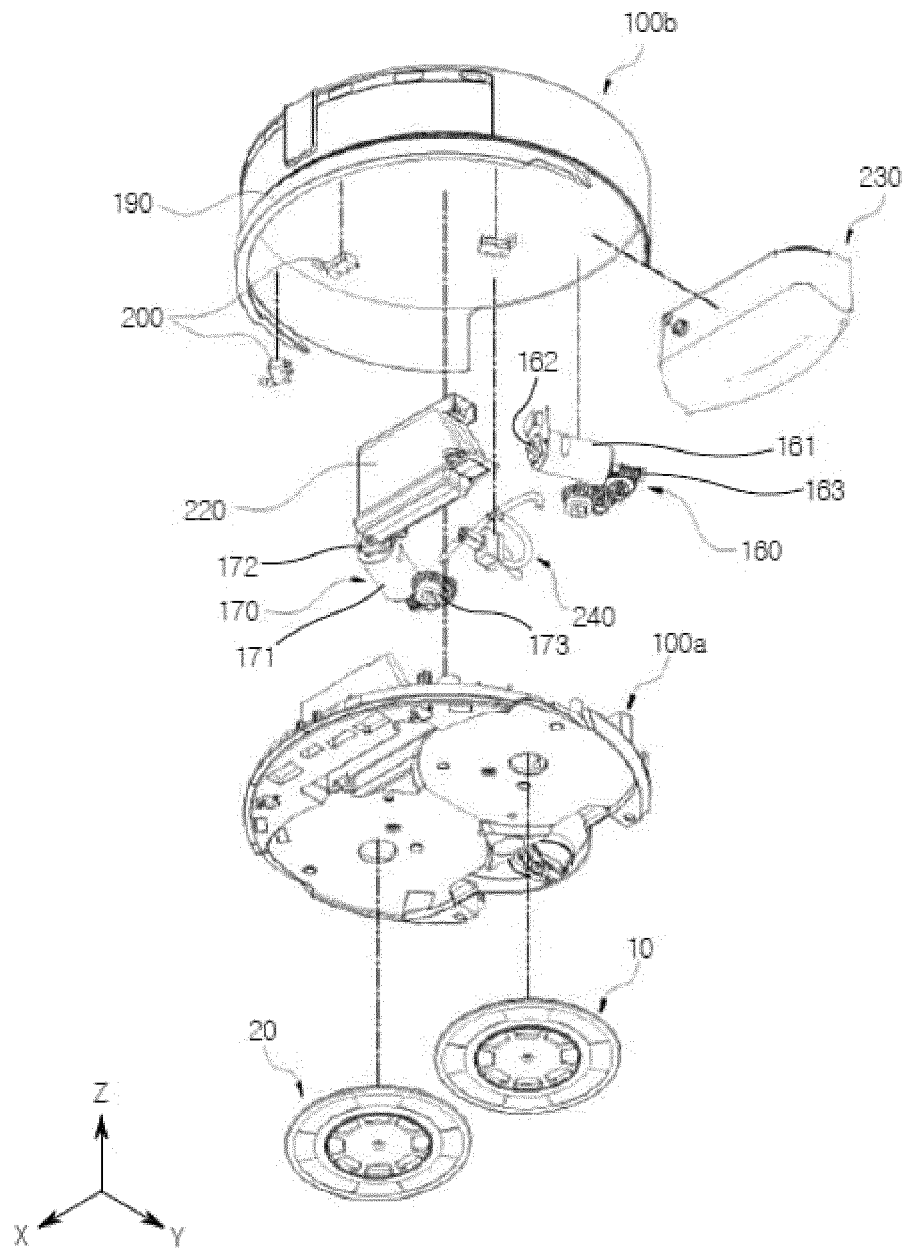
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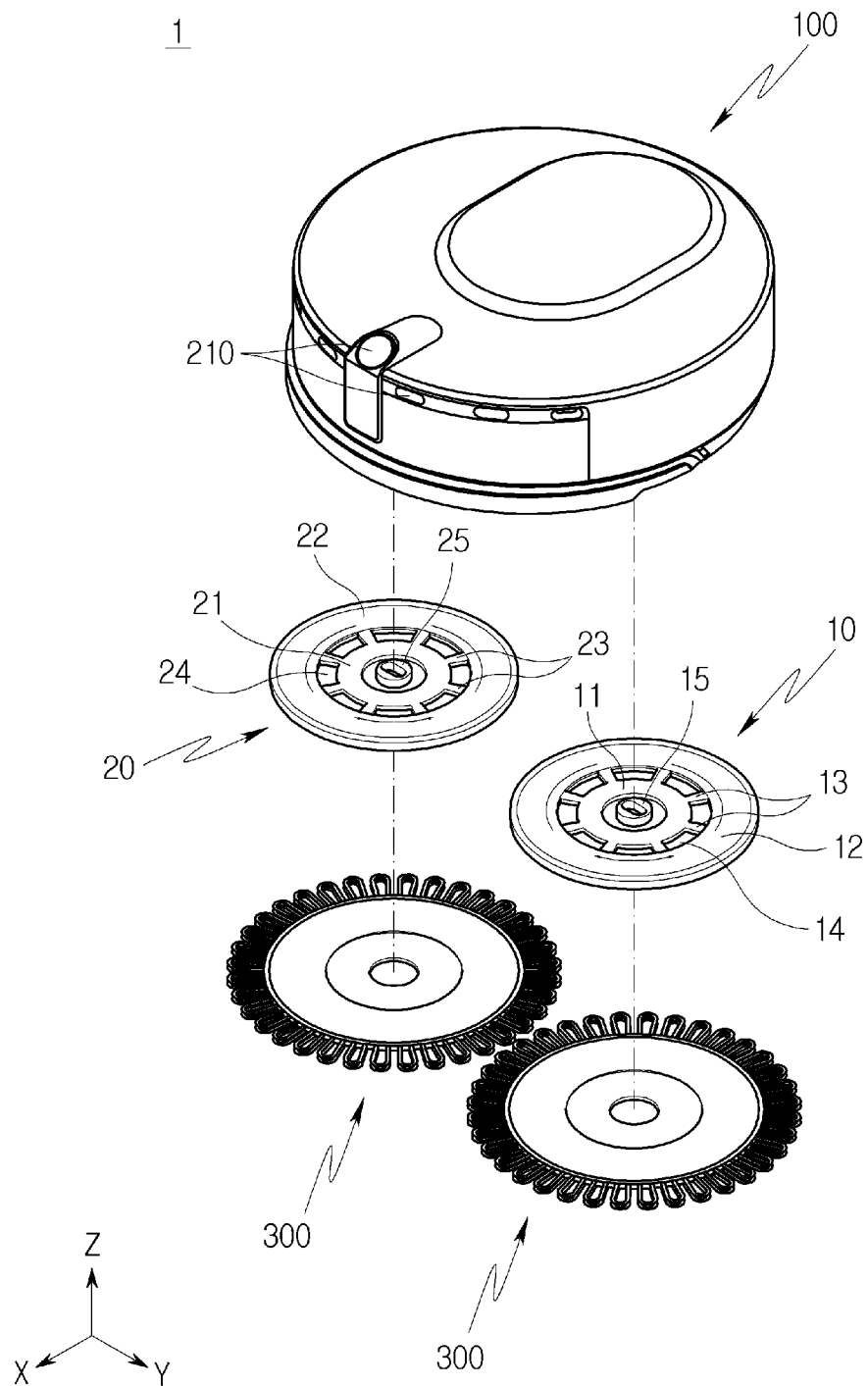
[FIG. 1]



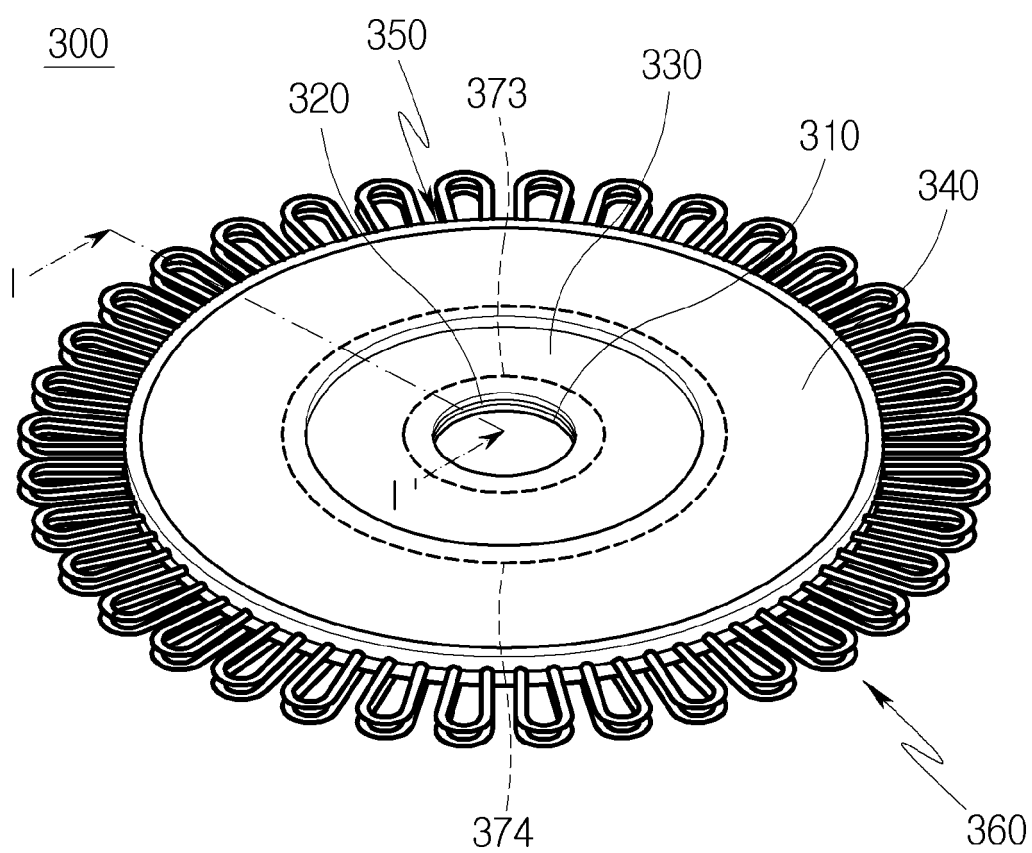
[FIG. 2]



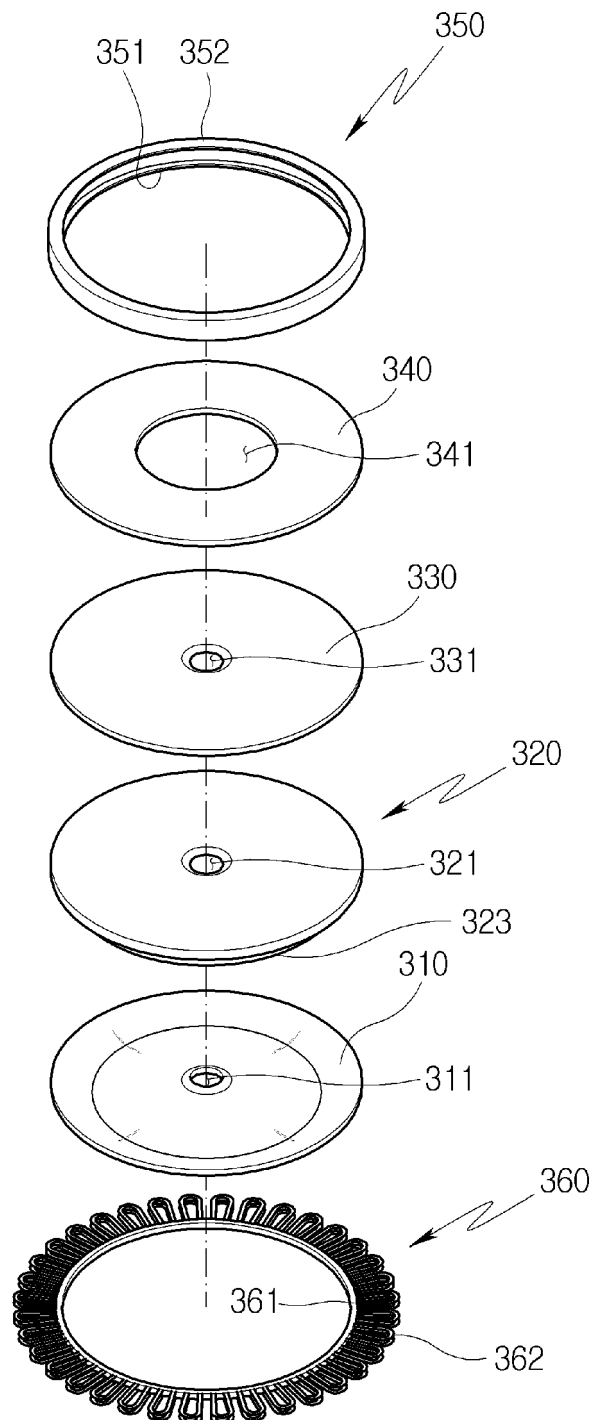
[FIG. 3]



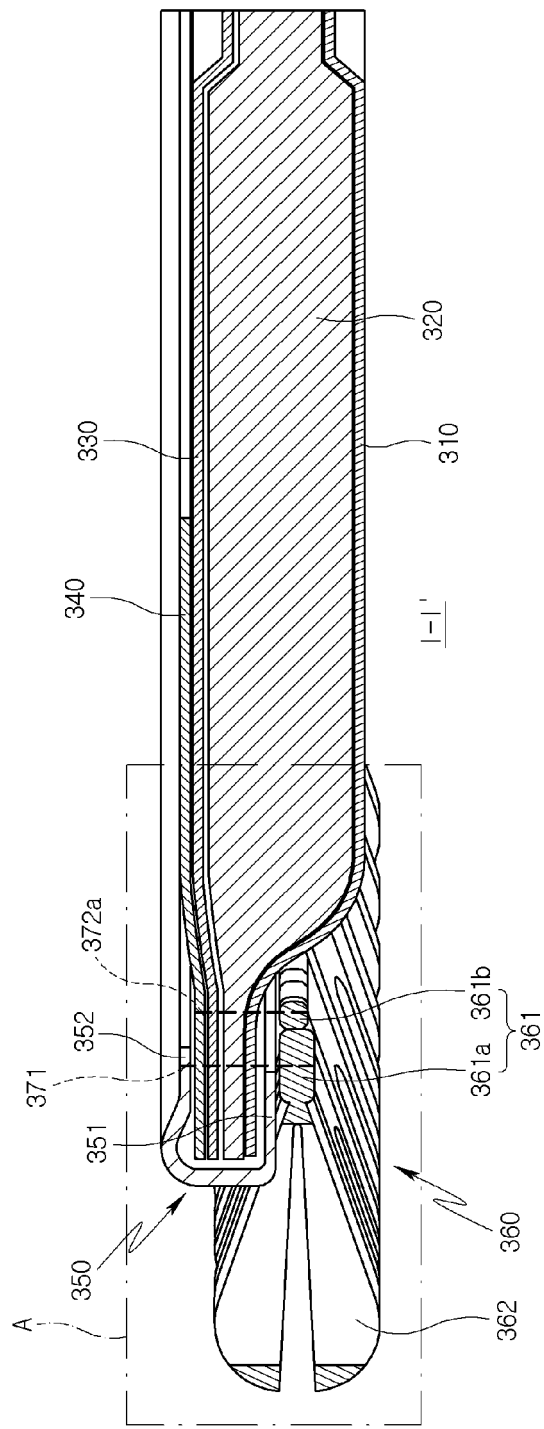
[FIG. 4]



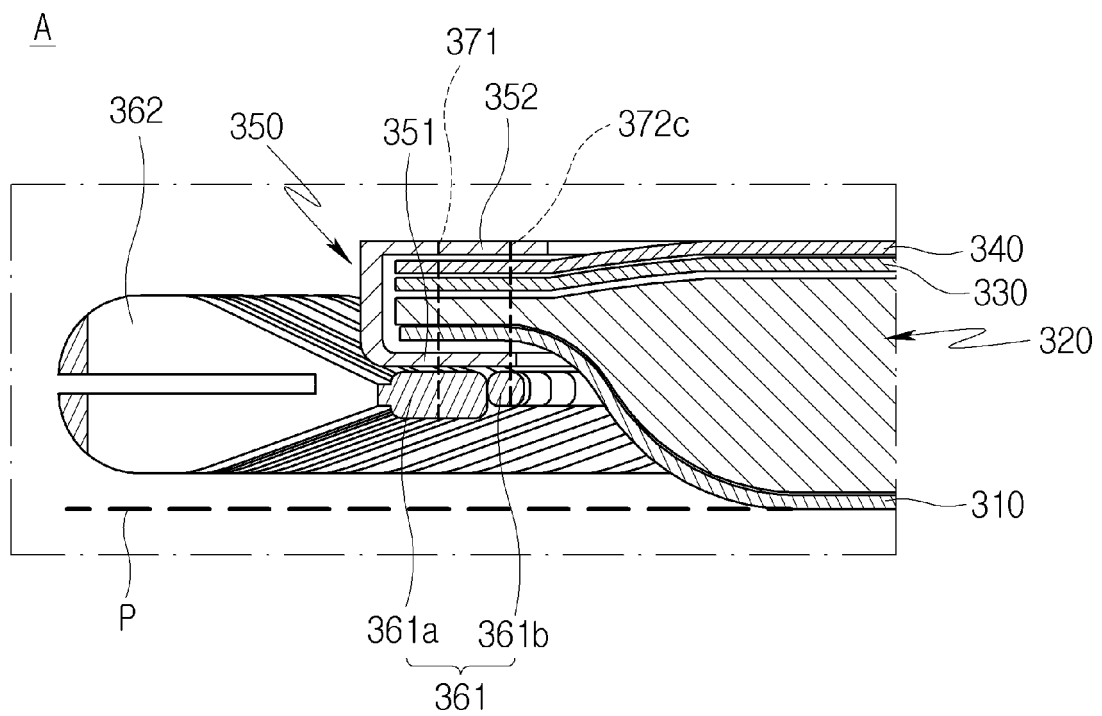
[FIG. 5]



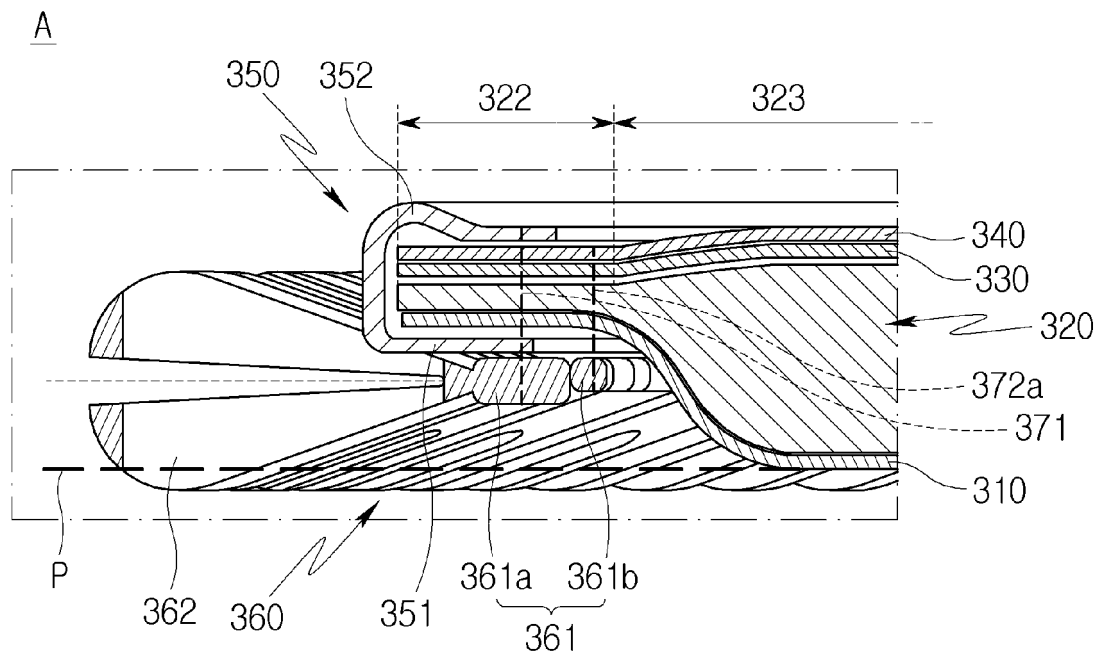
[FIG. 6]



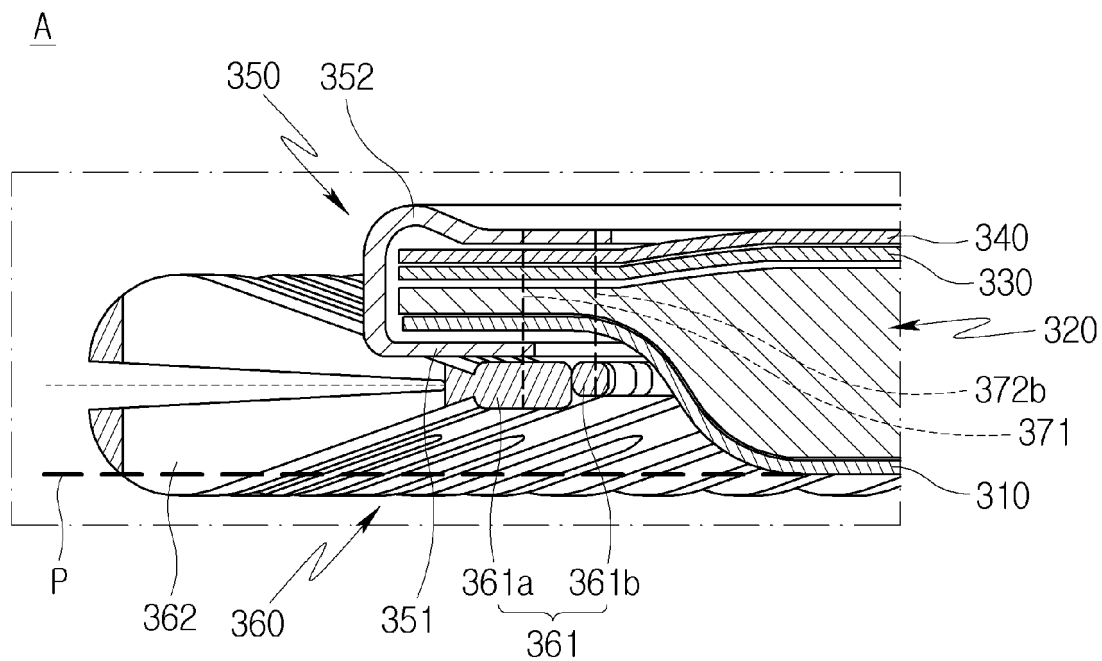
[FIG. 7]



[FIG. 8]



[FIG. 9]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2021/008295

A. CLASSIFICATION OF SUBJECT MATTER

A47L 11/40(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 11/40(2006.01); A47L 11/16(2006.01); A47L 11/20(2006.01); A47L 11/283(2006.01); A47L 13/16(2006.01);
A47L 13/20(2006.01); A47L 13/24(2006.01); A47L 13/252(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: 겹레(mop), 스티칭(stitching), 봉제(sewing), 경사(incline), 고리(loop), 적층(laminate), 흡수(absorption), 공급(supply), 부착(attach), 개구(opening)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2003-111708 A (YAMAZAKI CORP.) 15 April 2003 (2003-04-15) See paragraphs [0025]-[0031] and figures 1-3.	1,22-23
Y		2-3,9-21
A		4-8
Y	KR 10-2015-0065366 A (DAEGO) 15 June 2015 (2015-06-15) See paragraph [0028] and figure 2.	2-3,9-16
Y	KR 10-2020-0007987 A (LG ELECTRONICS INC.) 22 January 2020 (2020-01-22) See paragraphs [0230]-[0252] and figures 17-19.	10-21
A	JP 3147252 U (NISHIMURA et al.) 25 December 2008 (2008-12-25) See claims 1-6 and figures 1-2.	1-23



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"D" document cited by the applicant in the international application	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"E" earlier application or patent but published on or after the international filing date	"&" document member of the same patent family
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

07 October 2021

Date of mailing of the international search report

08 October 2021

Name and mailing address of the ISA/KR

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Authorized officer

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Form PCT/ISA/210 (second sheet) (July 2019)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2021/008295

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 20-0475723 Y1 (HONG, Kwang-Hee) 26 December 2014 (2014-12-26) See claim 1 and figures 1-8.	1-23

Form PCT/ISA/210 (second sheet) (July 2019)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2021/008295

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