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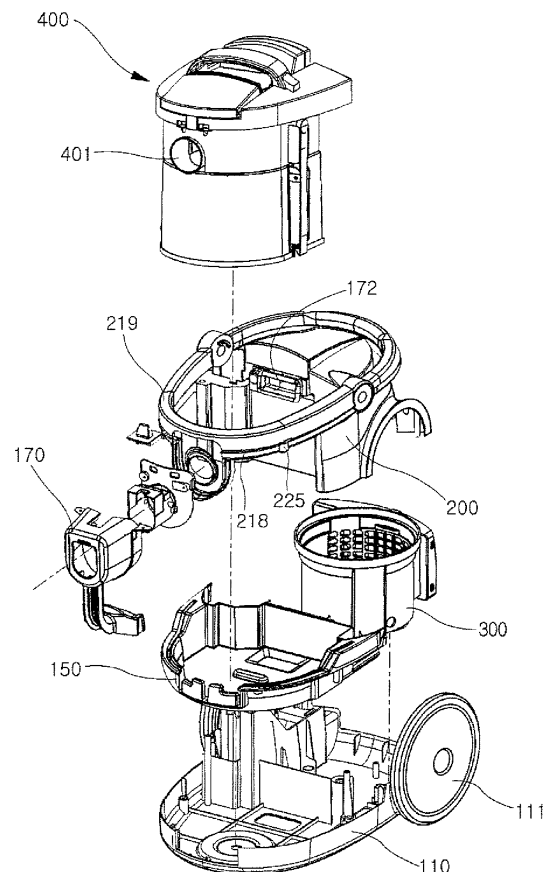
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(54) **Vacuum cleaner**

(57) A vacuum cleaner having an increased chassis strength and a more efficient layout of electrical wires is provided. The vacuum cleaner includes a base (110,150) for protecting its lower portion, a motor disposed above the base to provide suctioning power, a dust collection unit (400) disposed above and at a front of the base, an intake duct for guiding an outside air into the dust collection unit, a cover (200) for protecting the rear portion of the vacuum cleaner body, a connecting frame (218) extending around a front portion of a main body (100) of the vacuum cleaner for protecting the main body and accommodating a dust collection unit (400) therewithin in order to permit a viewing of an interior of the dust collection unit (400), the space around the dust collection unit being opened, and a reinforcing frame (219) covering the top of the connecting frame (218).

FIG.6



Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a vacuum cleaner, and more particularly, to a wiring structure of a vacuum cleaner that efficiently and safely installs various electrical wires in the vacuum cleaner.

Description of the Related Art

[0002] A vacuum cleaner is used to clean a room or other spaces by sucking air containing foreign objects and filtering the foreign object using vacuum pressure generated therein. In order to filter the foreign objects contained in the sucked air, a dust collection unit with a filtering unit is provided in the vacuum cleaner.

[0003] The filtering unit is classified into a porous filter formed of porous material and a cyclone type filter. The porous filter formed of porous material is designed to filter the foreign objects contained in air while the air passes through the filter. The cyclone type filter is designed to filter the foreign objects using cyclone airflow. In order to reuse the porous filter, a user cleans the filter to remove the foreign objects clogged in the filter. It is very inconvenient to clean the filter. Furthermore, when a large amount of the foreign objects are clogged, the porous filter cannot be reused, and must be discarded. Since the cyclone type filter is designed to remove the foreign objects from the air by a rotational air current generated by cyclone airflow, the clogging of the foreign objects in the filter is not incurred. Due to this reason, in recent years, cyclone type filter has been widely used.

[0004] In recent years, a multi-cyclone type dust collection unit, in which the cyclone unit is provided in plurality to generate a plurality of cyclone airflows so that the foreign objects contained in the air can be filtered by only the cyclone airflows, has been developed. The multi-cyclone airflows improve the foreign object removal efficiency. In addition, since there is no need to additionally provide the porous filter in the dust collection unit, the clogging problem is not incurred.

[0005] Also, the cyclone dust collection unit that traps dust therein must be made so that a user can visually check the amount of dust trapped in the machine in order to empty the unit. To be able to view the interior of the dust collection unit, the outside of the vacuum cleaner should be clear.

[0006] However, if the outside of the vacuum cleaner is made clear for viewing dust trapped inside, the exterior and strength of the vacuum cleaner body is compromised, and limitations to how electrical wires can be installed inside the vacuum cleaner are imposed.

SUMMARY OF THE INVENTION

[0007] Accordingly, the present invention is directed to a vacuum cleaner that substantially obviates one or more problems due to limitations and disadvantages of the related art.

[0008] An object of the present invention is to provide a vacuum cleaner capable of having a largely clear outside, yet at the same time, retaining a certain degree of structural strength and having no flaws in durability.

[0009] Additionally, the layout of the electrical wires will be optimal, and not be affected by external stresses and conditions.

[0010] Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objectives and other advantages of the invention may be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

[0011] To achieve these objects and other advantages and in accordance with the purpose of the invention, as embodied and broadly described herein, there is provided a vacuum cleaner as defined in claim 1. Preferred embodiments are defined in the dependent claims. The vacuum cleaner of the invention has a main body including a base for protecting a lower portion of the vacuum cleaner, a motor disposed above the base to provide suctioning power, a dust collection unit disposed above and at a front of the base, an intake duct for guiding an outside air into the dust collection unit, and a cover for protecting a rear portion of the vacuum cleaner, characterized in that the vacuum cleaner further comprises a connecting frame extending around a front portion of the main body to protect the main body and accommodate the dust collection unit therein so as to leave at least part of the space around the dust collection unit uncovered in order to permit viewing of the dust collection unit, and a reinforcing frame covering a top of the connecting frame.

[0012] In another aspect of the present invention, there is provided a vacuum cleaner including: a base for protecting the lower portion of the vacuum cleaner; a motor housing disposed at the upper rear portion of the base; a dust collection unit disposed above and at a front of the base; an intake duct for guiding an outside air into the dust collection unit; a cover for protecting the rear portion of a main body of the vacuum cleaner; and a frame extending around a front portion of the main body of the vacuum cleaner and having an opening in its lower portion in order to permit a viewing of an interior of the dust collection unit and housing electrical wires for sending electrical signals.

[0013] A vacuum cleaner of the present invention that has a large portion of its outer surface being clear will allow a user to visually check its interior, while retaining structural strength. Also, the layout of electrical wires is

optimized, while preventing the infliction of detrimental outside conditions to the wires.

[0014] It is to be understood that both the foregoing general description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

[0016] FIG. 1 is a perspective view of a vacuum cleaner where a dust collection unit of the present invention can be employed;

[0017] FIG. 2 is a front perspective of a vacuum cleaner depicted in FIG. 1;

[0018] FIG. 3 is a perspective view illustrating a vacuum cleaner and a dust collection unit according to an embodiment of the present invention, which is separated from the vacuum cleaner;

[0019] FIG. 4 is a sectional view taken along line II-II' of FIG. 3;

[0020] FIG. 5 is a sectional view taken along line III-III' of FIG. 3;

[0021] FIG. 6 is an exploded perspective view of a main body of a vacuum cleaner where a dust collection unit according to an embodiment of the present invention is employed;

[0022] FIG. 7 is an exploded perspective view of a dust collection unit according to the present invention;

[0023] FIG. 8 is a sectional view taken along line I-I' of FIG. 3; and

[0024] FIG. 9 is a sectional view of a vacuum cleaner where a dust collection unit according to an embodiment of the present invention is provided.

DETAILED DESCRIPTION OF THE INVENTION

[0025] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings to refer to the same or like parts.

[0026] FIG. 1 shows a vacuum cleaner to which a dust collection unit according to the present invention can be applied.

[0027] Referring to FIG. 1, a vacuum cleaner includes a main body 100 and a suction assembly connected to a suction portion through which outer air is sucked into the main body 100. Disposed in the main body 100 are a motor, a suction fan, and a dust collection unit. Therefore, the sucked air is exhausted out of the main body

100 after foreign objects contained in the sucked air are filtered.

[0028] The suction assembly is provided to suck the air containing the foreign objects when sucking force is generated in the main body 100. That is, the suction assembly includes a sucking nozzle body 1 for sucking the air containing the foreign objects using a powerful airflow, an expandable tube 2 extending from the sucking nozzle body 1 and expandable and contractible by a user, an operation handle 3 provided on a distal end of the expandable tube 2, a manipulation unit 4 provided on a front portion of the operation handle 3, a flexible tube 5 extending from the operation handle 2, a connector 6 connecting a distal end of the flexible tube 5 to the main body 100, a pipe rest 7 on which the expandable pipe 2 can be supported and suspended when the vacuum cleaner is not used. Each part forming the intake duct can be disposed differently based on the specifications of the vacuum cleaner; however, the parts collaborate to perform the task of sucking outside air into the main body of the vacuum cleaner main body.

[0029] The connector 6 functions as a connection terminal transmitting a manipulation signal inputted by the user through the manipulation unit 4 to the main body 100 as well as a passage through which the sucked air is introduced into the main body 100. That is, a plurality of electric connection terminals are provided on a proximal end of the connector 6. However, the electric connection terminals are required only when the manipulation unit 4 is provided on the suction assembly. That is, when the manipulation unit 4 is provided on the main body 100, the electric connection terminals are not provided on the connector 6. In this case, the connector 6 may simply function as an air introducing passage.

[0030] The air introduced into the main body 100 through the suction assembly is exhausted out of the main body 100 after the foreign objects contained in the introduced air are filtered.

The main body 100 of the vacuum cleaner will be described in more detail hereinafter with reference to FIGs. 1 and 2.

[0031] FIG. 2 shows the main body of the vacuum cleaner.

[0032] Referring to FIGs. 1 and 2, the main body 100 includes a first base 110 defining a lower portion of the main body 100, a second base 150 disposed on the first base 110, a cover 200 disposed on the second base 150, wheels 111 provided on both rear-side portions of the cover 200 to make it easy to move the main body 100, and a front support 170 for supportably fixing the cover 200 and the first and second bases 110 and 150.

[0033] At the upper level of the cover 200 is circular connection frame 218 formed from front to back; and directly above the connection frame 218 is a reinforcing frame 219, which becomes an assembly with the connection frame 218. Furthermore, attached to the front of the connection and reinforcing frame 219 and 219 assembly is a front support 170. The connection frame 218

is manufactured as one unit with the cover 200, and can be made to extend from the front of the cover 200, and connect with a separate cover 200 at the rear.

[0034] The lower portion of the connection frame 218, according to the described layout, is exposed in its entirety; and because the exposed portions can be visually inspected from the outside, a user can determine the degree of foreign object accumulation within the dust collection unit 400. In addition, the upper front portion of the cover 200 can be supported by the assembly of the connection and reinforcing frames 218 and 219. Accordingly, the front end of the main body 100 of the vacuum cleaner can be supported in its entirety by the front support 170.

[0035] The connector 6 is connected to the front support 170 to allow the outer air to be introduced into the main body 100. The support 170 is designed to support the cover 200 and the first and second bases 110 and 150, thereby securely supporting the front portion of the main body 100. Likewise, because the connector 6 is connected to the main body 100 of the vacuum cleaner, the wires that connect to the signal wires from the connector 6 must be disposed in the interior of the main body 100.

[0036] Preferably, the wires are disposed in the interior space of the gap between the connecting frame 218 and the reinforcing frame 219.

[0037] The second base 150 is provided right above the first base 110 to improve the ornament of the main body and enhance the rigidity of the lower portion of the main body 100.

[0038] An exhaust cover 301 provided with a plurality of exhaust holes 302 is provided on a rear portion of the cover 200 to exhaust clean air. A carrying handle 201 is pivotally provided on a top surface of the cover 200. When a user intends to carry the main body 100, the user pivots the carrying handle 201 in a vertical position and conveniently carries the main body 100 with his/her hand grasping the carrying handle 201.

[0039] A dust collection unit 400 is disposed in the main body in rear of the front support 170 and a cyclone member is received in the dust collection unit to generate cyclone airflows and filter the foreign object contained in the air.

[0040] As shown in FIG. 3, the dust collection unit 400 is vertically installed in and separated from a receiving chamber 151 defined in the main body 100. That is, the dust collection unit 400 may be installed in the receiving chamber 151 by being pushed downward and separated from the receiving chamber 151 by being pulled upward.

[0041] The front support 170 is provided with a first air intake hole 171 and the dust collection unit 400 is provided with a second air intake hole 401 corresponding to the first air intake hole 171. The dust collection unit 400 is further provided with an exhaust hole opposite to the second air intake hole 401. The exhaust hole is aligned with a third air intake hole 172 formed toward the motor so that the air cleaned by passing through the collection unit 400 is exhausted toward the motor side.

[0042] Particularly, the third air intake hole 172 is formed in a rectangular shape lengthwise in a horizontal direction so as to reduce the size of the main body 100 and allow the air to effectively flow.

[0043] Specifically, a circular protruding member 225 having a predetermined width is protrudingly formed on the sides of the connection frame 218. The circular protruding member 225 is used as a route for passing wires through, when spaces to install wiring in are reduced due to the boss connecting the connection frame 218 and the reinforcing frame 219. The reinforcing frame 219 is provided separately and is attached to the connection frame 218, to reinforce the latter, structurally strengthening the vacuum cleaner.

[0044] FIG. 4 is a sectional view taken along line II-II' of FIG. 3. Referring to FIG. 4, a predetermined space is formed between the connection frame 218 and the reinforcing frame 219, wherein wires are disposed, thus allowing signals sent along the connector 6 to be transmitted to the vacuum cleaner controller. Also, a forming portion 220 protrudes vertically from the bottom of the connection frame 218, reinforcing the connection frame 218 to prevent it from being damaged by outside shocks.

[0045] FIG. 5 is a sectional view taken along line III-III' of FIG. 3. Referring to FIG. 5, the structural layout where a circularly protruding member 225 is formed will be explained.

[0046] As previously explained, the circular protruding member 225, through which wires pass, is formed at the location where the connecting frame 219 and the reinforcing frame 219 join. In further detail, when there is not enough room inside the connecting frame 218 and the reinforcing frame 219 to pass wires 221 through on account of a first boss 222 and a second boss 223 protruding therein, the circular protruding portion 225 provides a passage for the wires 221 to pass. Of course, the first and second bosses 222 and 223 are aligned together and connected by means of a fastener 224 inserted from the bottom upward.

[0047] As explicitly shown in FIGS. 4 and 5, because wires 221 can pass through an interior space of the connection and reinforcing frames 218 and 219, the wires 221 are not exposed, and therefore not subject to potential damage inflicted by outside shocks.

[0048] Of course, the wires 221 extend to the rear of the main body of the vacuum cleaner, where the controller is located, for relaying control signals.

[0049] FIG. 6 is an exploded perspective view of a main body of a vacuum cleaner where a dust collection unit according to an embodiment of the present invention is employed.

[0050] Referring to FIG. 6, a second base 150 is disposed at the front upper portion of a first base 110; and to the rear of the first base 110 is a motor housing 300. Subsequently, a cover 200 is placed on top, completing the structure of the main body of the vacuum cleaner 100.

[0051] Here, the cover 200 is coupled to the first and second bases 110 and 150 in a state where the front

support 170 is coupled to the cover 200. A flowing direction of the air introduced into the motor housing 300 through the third air intake hole 172 is changed by 90° in a vertical direction and is then changed in a horizontal direction so that the air can be exhausted rearward.

[0052] FIG. 7 is an exploded perspective view of a dust collection unit according to the present invention.

[0053] Referring to FIG. 7, the inventive dust collection unit 400 does not use a porous filter such as a sponge. That is, the inventive dust collection unit 400 is designed to filter the foreign objects using cyclone airflows. The cyclone airflow is generated at least two chambers separated from each other so that even the micro-scale dusts contained in the air can be filtered. This will be described in more detail hereinafter.

[0054] The dust collection unit 400 includes a collection body 406 provided with a plurality of filtering chambers (refer to the reference numerals 423 and 424 of FIG. 8) for filtering the foreign objects and a plurality of storing chambers (refer to the reference numerals 417 and 416 of FIG. 8) for storing the filtered foreign objects, chamber seal members 402 and 415 provided to seal a bottom of the collection body 406 and prevent the foreign objects stored in the storing chambers 416 and 417 from leaking, an air exhaust member 407 disposed on the collection body 406 to guide the flow of the air exhausted from the collection body 406, a gap forming member 408 providing a predetermined gap above the exhaust member 407 to allow the air exhausted from the exhaust member 407 to flow in one direction, and a cover assembly 409, 410, 411, and 412 disposed on the gap forming member 408.

[0055] The cover assembly includes a first cover 410 functioning as a main body of the cover assembly, second and third covers 409 and 412 respectively disposed in rear and front of the first cover 410, a cover fixing member 411 fixing the first and second covers 410 and 409. The cover fixing member 411 is designed to cover a portion of the first cover 410 to improve the outer appearance while simultaneously fixing the first and second covers 410 and 409.

[0056] Disposed in the dust collection body 406 are a cone-shaped filter 405 and a blocking member 404 and airflow preventing plates 403. The cone-shaped filter 405 is provided to effectively filter the foreign objects when the cyclone airflows are generated. The blocking member 404 is disposed under the cone-shaped filter 405 to prevent the collected foreign objects from flying. The airflow preventing plates 403 are formed under the blocking member 404 to lower the airflow rate and to thereby allow the foreign objects to sink to the bottoms of the foreign object storing chambers 416 and 417.

[0057] In addition, an opening/closing button 413 is provided on the first cover 410 and an opening/closing lever 414 having a first end contacting the opening/closing button 413 to pivot when the opening/closing button 413 is pushed. The opening/closing lever 414 has a second end contacting the first chamber seal member 415. Therefore, when the opening/closing lever 414 is pushed,

the opening/closing lever 414 pivots around a predetermined hinge point. When the second end of the opening/closing lever 414 moves away from the first chamber seal member 415, the first chamber seal member 415 rotates around a hinge point by its self-gravity and the foreign objects collected in the storing chambers 416 and 417 settled by their self-gravities.

[0058] In addition, the chamber seal members 415 and 402 are designed to respectively seal the bottoms of the foreign object storing chambers 415 and 416. The first chamber seal member 415 is hinge-coupled to the collection body 406 so that it can be opened by a pivotal motion when it is intended to throw away the foreign objects stored in the first chamber seal member 415. A separation plate 437 for separating the first and second filtering chambers 423 and 424 from each other and defining an air passage is provided on a top surface of the collection body 406.

[0059] A plurality of guide ribs 459 are formed on an outer circumference of the collection body 406 to guide the insertion of the exhaust member 407 around the collection body 406. Each of the guide ribs 459 are gently rounded at an upper corner to effectively guide the insertion.

[0060] FIG. 8 is a sectional view taken along line I-I' of FIG. 3. The internal structure and operation of the dust collection unit 400 will be described in more detail with reference to FIG. 8.

[0061] As described with reference to FIG. 8, the dust collection unit 400 includes the collection body 406, the chamber sealing members 402 and 415 provided to selectively seal the bottom of the collection body 406, the cone-shape filter 405 received in the collection body 406 to enhance the dust collection efficiency, the blocking member 404 preventing the foreign objects stored in the collection body 406 from flying, the airflow preventing plates 403 for lowering the airflow rate and for thereby allowing the foreign objects to sink to the bottoms of the foreign object storing chambers, the air exhaust member 407 disposed on the collection body 406 to guide the flow of the air exhausted from the collection body 406, the gap forming member 408 providing a predetermined gap above the exhaust member 407 to allow the air exhausted from the exhaust member 407 to flow in a direction, and covers 409, 410, 411, and 412 disposed on the gap forming member 408.

[0062] The collection body 406 layout will now be explained.

[0063] The collection body 406 includes the outer wall 418, the intermediate wall 419 and the inner wall 420. The outer wall 418 and the intermediate wall 419 are not formed on the portion where the second air intake hole 401 is formed, thereby allowing the air to be effectively introduced.

[0064] A space defined between the outer wall 418 and the intermediate wall 419 becomes the first storing chamber 416 and a space defined between the intermediate wall 419 and the inner wall 420 becomes the second

storing chamber 417. An inner space defined by the inner wall 420 becomes the first filtering chamber 423. However, the functions of the spaces vary according to the shape of the dust correction unit 400.

[0065] The operation of the above-described dust collection unit will be described hereinafter with reference to the airflow. The air is first introduced into the dust collection unit 400 through the second air intake hole 401. Here, an outer end of the second air intake hole 401 communicates with the front support 170 and an inner end of the second air intake hole 401 communicates with the first filtering chamber 423. A first air introduction guide 421 is projected inward from a portion of the inner wall 420, which defines the inner end of the second air intake hole 401, to guide the air in an inner circumferential direction of the first filtering chamber 423.

[0066] When the cyclone airflow is generated in the first filtering chamber 423, the foreign objects contained in the air are settled and the cleaned air is exhausted upward through the apertures of the cone-shaped filter 405. The second air exhaust hole 401 is formed corresponding to an upper portion of the cone-shaped filter 405, a relatively high RPM cyclone airflow is generated at the upper portion of the cone-shaped filter 405 and a relatively low RPM cyclone airflow is generated at a lower portion of the cone-shaped filter 405. This is the reason for forming the filter 405 in the cone-shape. That is, since a large amount of the foreign objects are forced outward in the relatively high RPM cyclone airflow and a large amount of the foreign objects are forced in the relatively low RPM cyclone airflow, it is preferable that the filter 405 is formed in the cone-shape.

[0067] Also, the foreign objects filtered in the first filtering chamber 423 are stored in the first storing chamber 416 located therebelow. Here, in order to prevent the stored foreign objects from escaping, a first chamber sealing member 415 is disposed at the bottom of the first storing chamber 416.

[0068] The air introduced passes through the first filtering chamber 423, in the course of which the relatively large-sized foreign objects contained therein are filtered, and is then directed to the separation plate 437 through the cone-shaped filter 405. Therefore, in order to filter micro-scale foreign objects, additional cyclone airflow is further required. This will be described in more detail hereinafter.

[0069] The air passing through the cone-shaped filter 405 is introduced into the second filtering chambers 424 through a second air introduction guide 422. Since the second air introduction guide 422 faces the inner circumference of the second filtering chambers 424 in a tangent direction, the cyclone airflow is generated in the second filtering chamber 424.

[0070] The foreign objects filtered in the second filtering chambers 424 by the cyclone airflow are settled in the second storing chamber 417. In order to prevent the settle foreign objects from flying, a width of each of the lower portion of the second filtering chambers 417 are

narrowed. In addition, in order to prevent the settled foreign objects from leaking, a bottom of the second storing chamber 417 is sealed by the second chamber sealing member 402.

[0071] The second chamber sealing member 402 has a bar-shaped connection structure to be connected to the first chamber sealing member 415, thereby increasing an inner volume of the first storing chamber 416. That is, since the foreign objects are stored in the space defined between the lower end of the second chamber sealing member 402 and the upper end of the first chamber sealing member 415, it is preferable that the connection structure is formed in a bar-shape that can occupy a small space.

[0072] The air whose foreign objects are filtered in the second filtering chamber 424 is introduced into the exhaust member 407 via an exhaust side air intake hole 425 and collected in a space between the exhaust member 407 and the gap forming member 408. Here, a diameter of the exhaust side air intake hole 425 is less than an inner diameter of the second filtering chamber 424 so as to prevent the foreign objects in the second filtering chamber 424 from being directed to the exhaust member 407. That is, the foreign objects collected on the inner circumference of the second filtering chambers 424 are not exhausted through the exhaust side air intake hole 425.

[0073] The air whose foreign objects are filtered by the cyclone airflows is directed to the motor and exhausted through the rear surface of the main body 100.

[0074] Meanwhile, the cover assembly is further formed on an upper portion of the gap forming member 408. The cover assembly includes the first cover 410, the second and third covers 409 and 412 covering the rear and front portions of the first cover 410, and the cover fixing member 411 fixing the second cover 409 to the first cover 410.

[0075] The operation of the above-described dust collection unit 400 and the overall operation of the main body 100 of the vacuum cleaner will be described hereinafter with reference to FIG. 9

[0076] Referring to FIG. 9 outer air is introduced into the main body 100 through the air intake hole 171 of the main body 100 and is then introduced into the dust collection unit 400 through the air intake hole of the dust collection unit. The foreign objects contained in the air is filtered in the dust collection unit 400 as described above and is then introduced into the motor housing 300 in a horizontal direction.

[0077] The air introduced into the motor housing 300 in the horizontal direction moves downward to be exhausted through the exhaust holes 302 formed on the rear surface of the main body 100.

[0078] A vacuum cleaner according to the present invention, despite having an opening at a specific location, has a certain structural strength and a more efficient layout.

[0079] Also, the layout of the electrical wires inside the

vacuum cleaner is optimized, and at the same time, unaffected by outside adverse conditions, thereby ensuring safe operation of the machine.

[0080] It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention. Thus, it is intended that the present invention covers the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

Claims

1. A vacuum cleaner having a main body (100) including
a base (110,150) for protecting a lower portion of the vacuum cleaner,
a motor disposed above the base (110,150) to provide suctioning power,
a dust collection unit (400) disposed above and at a front of the base (110,150),
an intake duct for guiding an outside air into the dust collection unit (400), and
a cover (200) for protecting a rear portion of the vacuum cleaner,
characterized in that the vacuum cleaner further comprises:

a connecting frame (218) extending around a front portion of the main body (100) to protect the main body and accommodate the dust collection unit (400) therein so as to leave at least part of the space around the dust collection unit (400) uncovered in order to permit viewing of the dust collection unit (400); and
a reinforcing frame (219) covering a top of the connecting frame (218).
2. The vacuum cleaner according to claim 1, wherein the connecting frame (218) and/or the reinforcing frame (219) are/is connected to the base (110,150) by a front support (170) for supporting a front portion of the vacuum cleaner.
3. The vacuum cleaner according to claim 2, further comprising a connector (6) formed at an end of the intake duct.
4. The vacuum cleaner according to any one of claims 1 through 3, wherein the connecting frame (218) and the reinforcing frame (219) include a pair of bosses (222,223) of one portion connecting to an opposite portion having screws for fastening the two portions.
5. The vacuum cleaner according to any one of the preceding claims, wherein the connecting frame (218) is formed in one piece with the cover (200).

6. The vacuum cleaner according to any one of the preceding claims, wherein the reinforcing frame (219) and the connecting frame (218) have interiors accommodating wires (221).
7. The vacuum cleaner according to claim 6, wherein the connecting frame (218) has a circular protruding member (225), through which a wire (221) passes, formed on at least one surface of the connecting frame (218).
8. The vacuum cleaner according to any one of the preceding claims, wherein the connecting frame (218) is formed on an upper portion of the main body (100) of the vacuum cleaner.
9. The vacuum cleaner according to any one of the preceding claims, wherein the connecting frame (218) and the reinforcing frame (219) are provided separately.

FIG.1

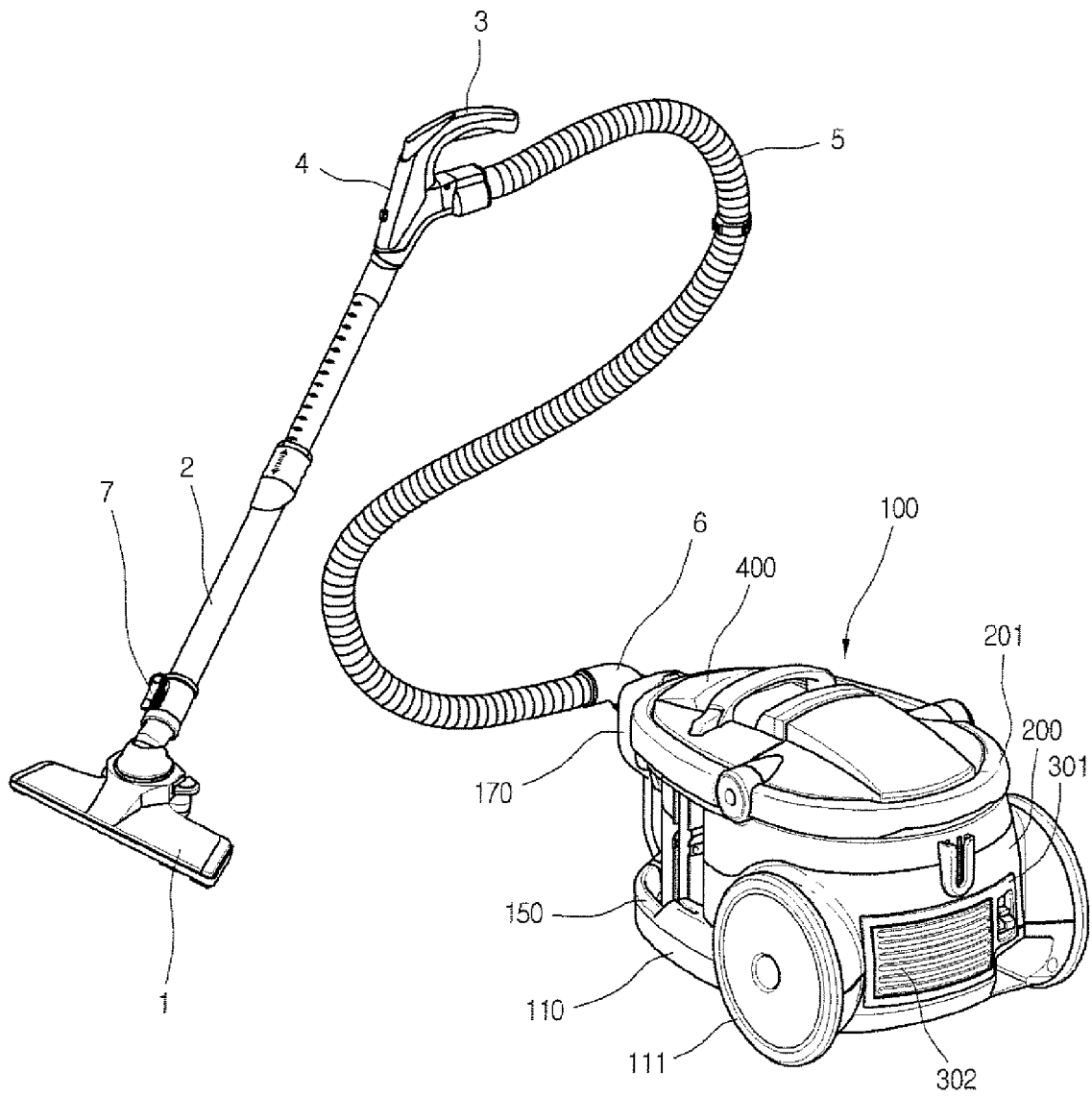


FIG.2

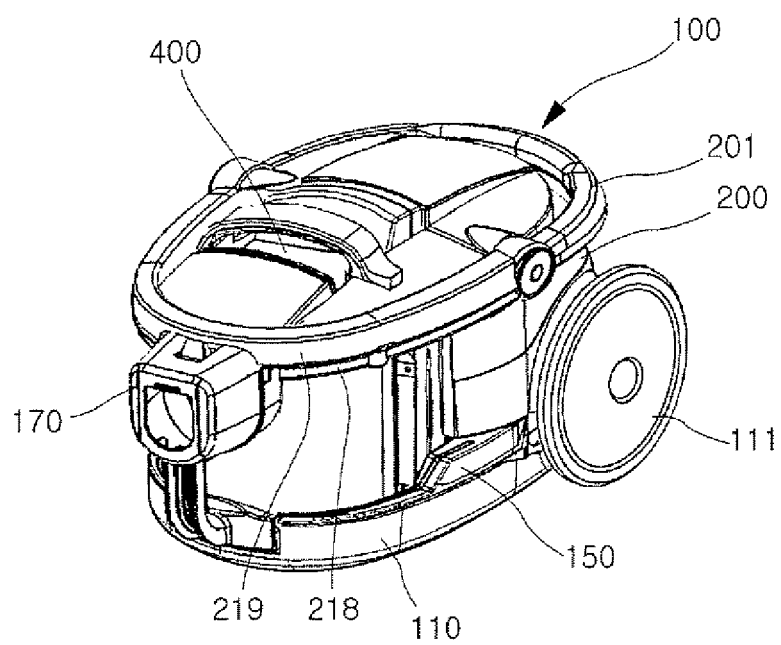


FIG.3

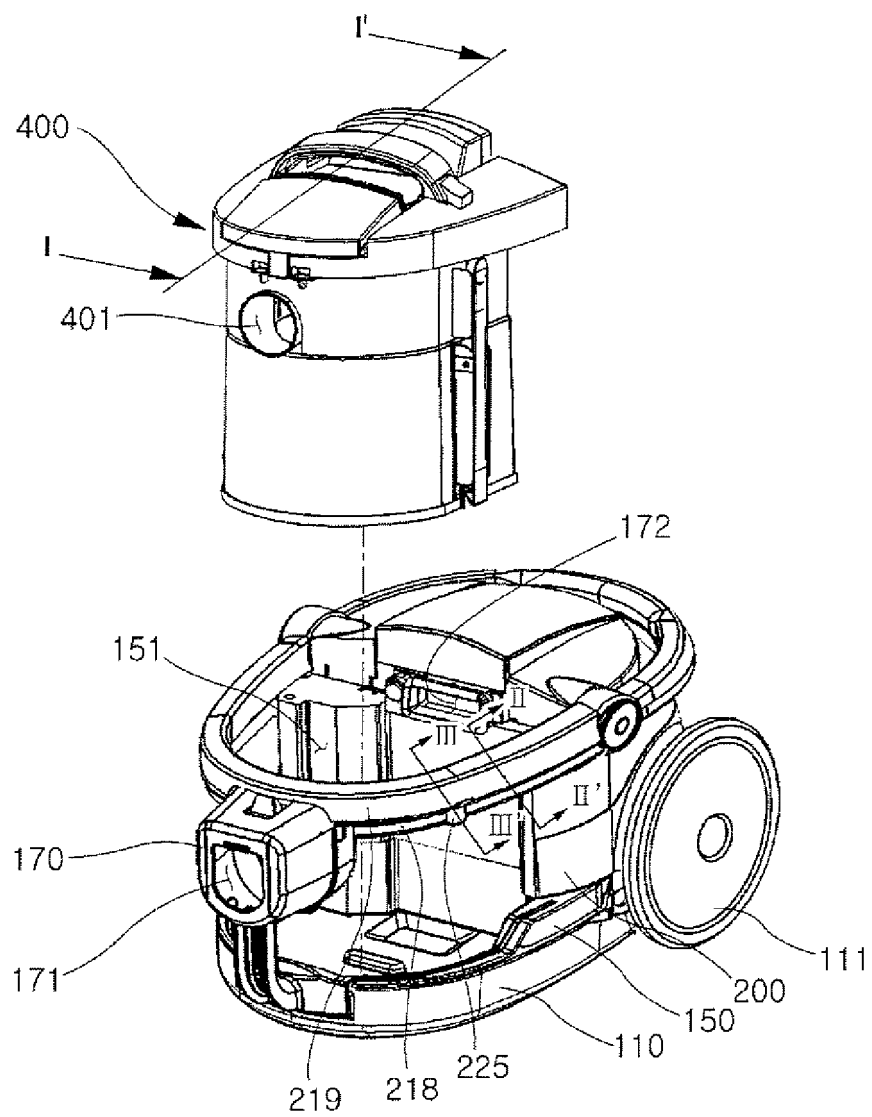


FIG.4

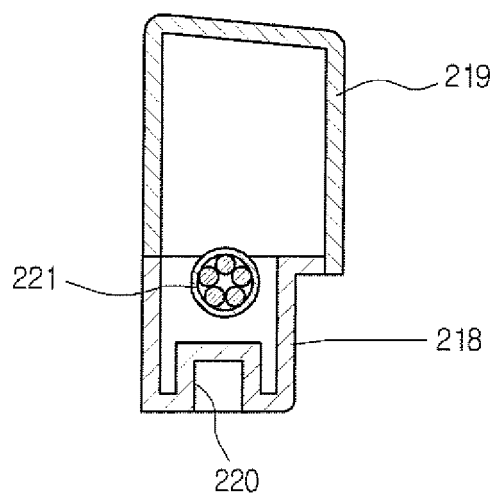


FIG.5

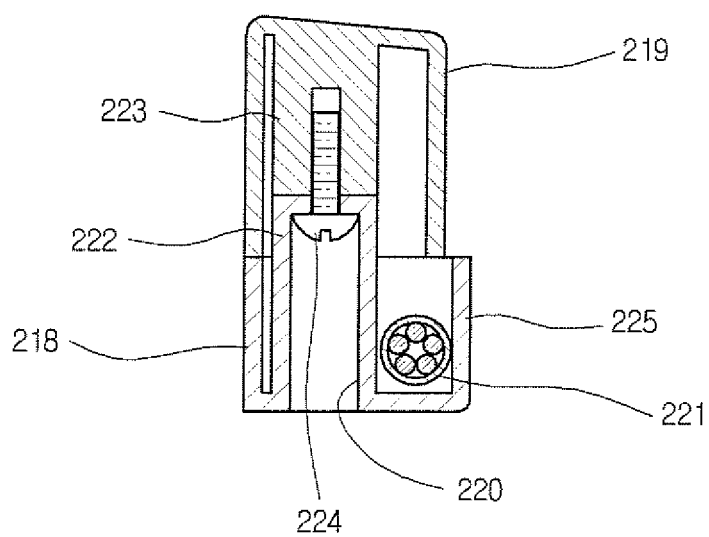


FIG.6

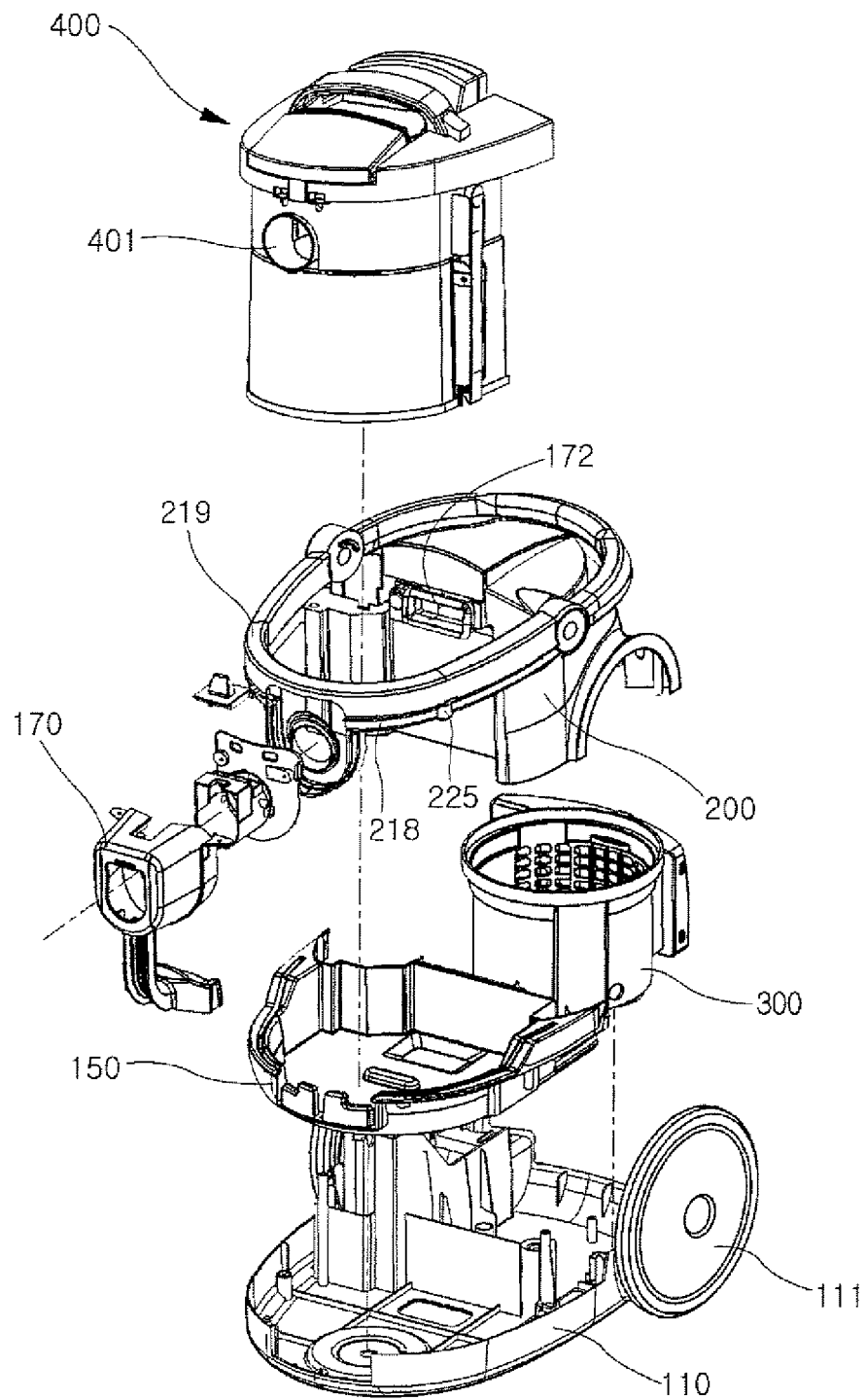


FIG.7

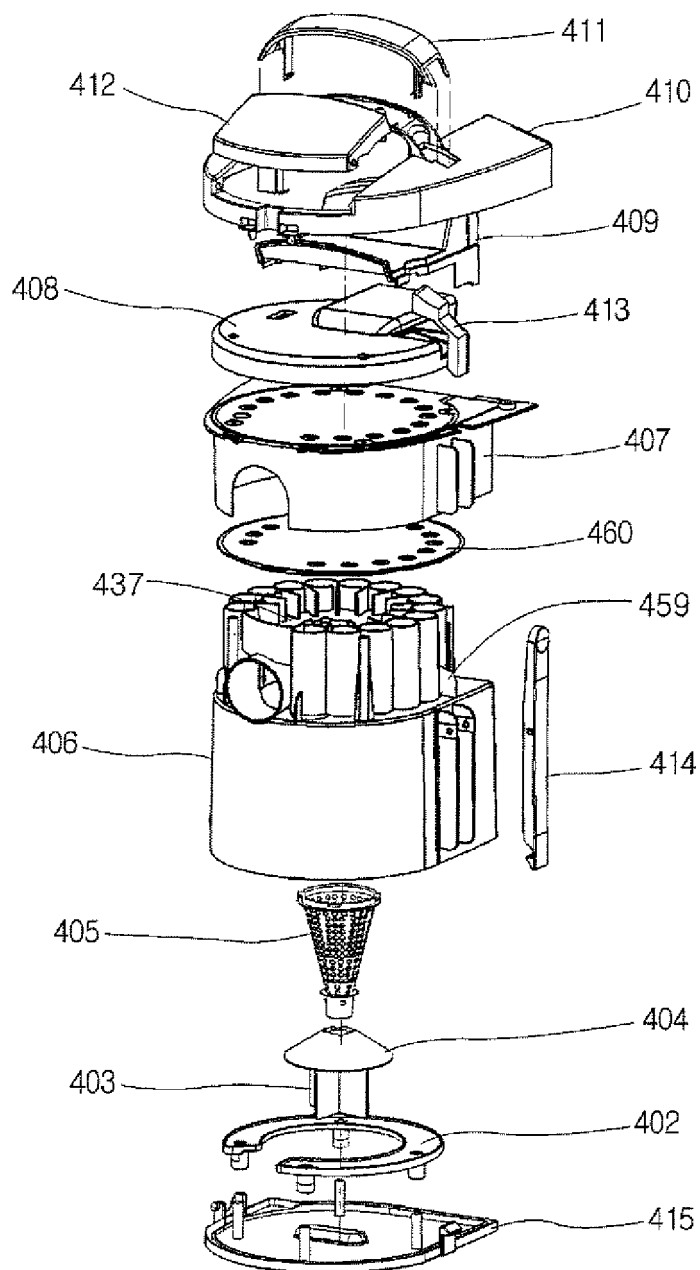


FIG.8

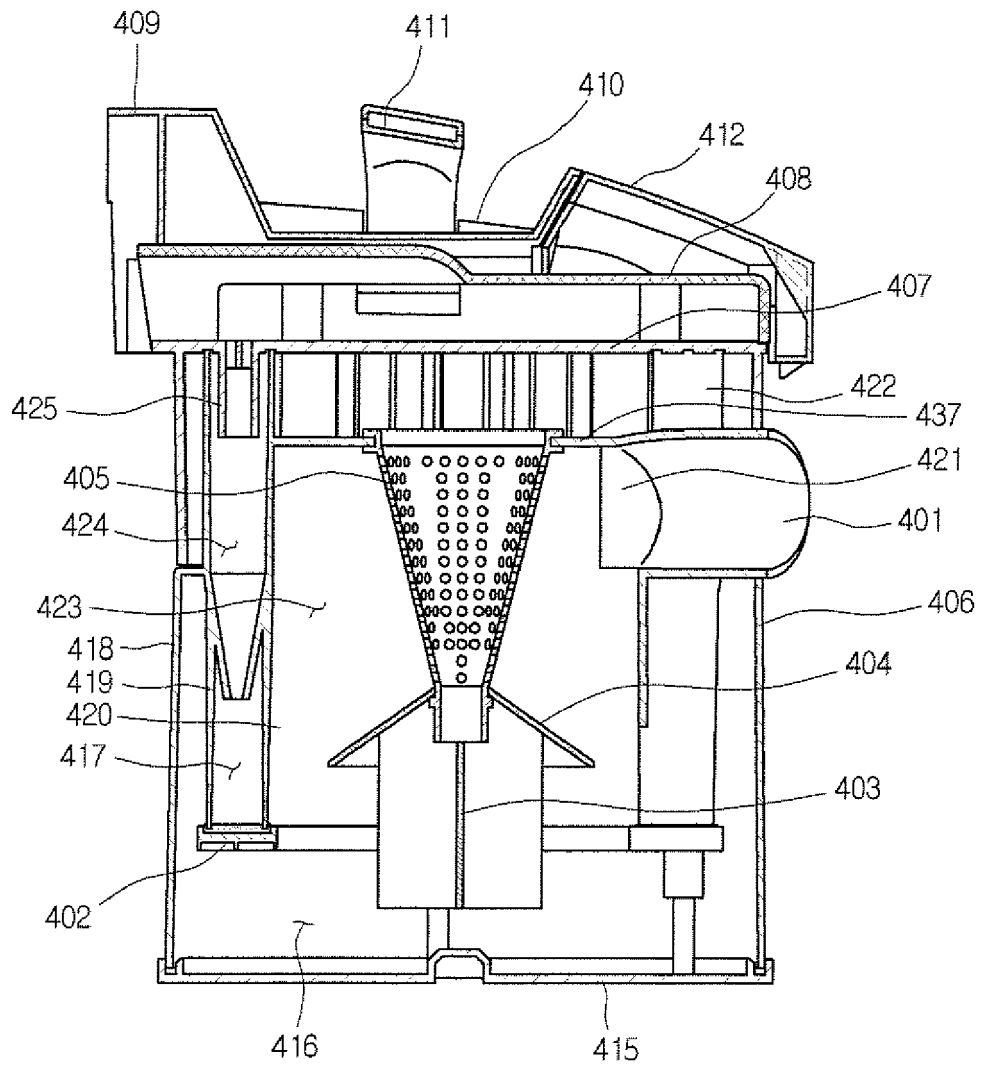


FIG.9

