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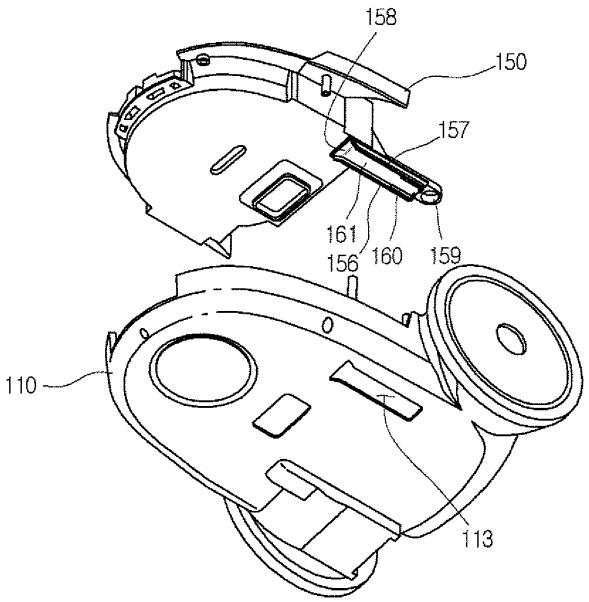
(54) Vacuum cleaner with a suction assembly parking device

(57) A vacuum cleaner having a parking device for firmly and securely parking a vacuum cleaner nozzle on the main body of the vacuum cleaner, when storing the vacuum cleaner, is provided. The nozzle parking device for a vacuum cleaner includes a first base (110) disposed at the lowest portion of a main body (100) of the vacuum cleaner, a second base (150) coupled to a top of the first base, an opening (113) defined by a portion of the first base (110), and a parking portion (156) formed on the second base (150) and disposed to lie flush inside the opening (113) when received in the second base (150) for parking an extension tube hook.

FIG.6



EP 1 674 010 A1

Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a vacuum cleaner, and more particularly, to a parking device for a nozzle of a vacuum cleaner for use on a vacuum cleaner having more than one base. In further detail, when the vacuum cleaner is not being used, the inventive parking device allows a nozzle portion including an extension tube to be hooked onto the floor portion of the vacuum cleaner, thereby facilitating storage and transportation of 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. Furthermore, when a large amount of the foreign objects are clogged, the porous filter cannot be reused. 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 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, the clogging problem is not incurred.

[0005] When a vacuum cleaner is stored or moved, the nozzle portion is parked on the main body of the vacuum cleaner, allowing easy storage and transport of the vacuum cleaner. The parking position is generally located on the bottom or the rear of the main body of the vacuum cleaner.

[0006] It is important to endow the parking portion with enough structural strength to support the entirety of the nozzle portion when parked thereon. A parking portion located at the front of a main body of the vacuum cleaner tends to be structurally weak and therefore easily damaged, preventing its performance of its given task.

SUMMARY OF THE INVENTION

[0007] Accordingly, the present invention is directed to a vacuum cleaner with a suction assembly parking device 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 and a strong parking device for a nozzle of a vacuum cleaner located on the underside of the vacuum cleaner.

[0009] Another object of the present invention is to provide a vacuum cleaner and a parking device for a nozzle of a vacuum cleaner capable of firmly reinforcing a multi-level base of a vacuum cleaner (as is the case with vacuum cleaners employing multi cyclone dust collection units).

[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 with a suction assembly parking device as defined in claim 1. Preferred embodiments are defined in the dependent claims. The vacuum cleaner with a suction assembly parking device in accordance with the present invention comprises a first base disposed at a lowest portion of a main body of the vacuum cleaner; and a second base coupled to a top of the first base, wherein said suction assembly parking device comprises an opening defined by a portion of the first base, and a parking portion provided on the second base and disposed to be lie inside the opening and adapted to receive a mating hook portion of a suction assembly for parking the suction assembly on the vacuum cleaner.

[0012] In another aspect of the present invention, there is provided a parking device for a nozzle of a vacuum cleaner having a first base disposed at the lowest portion of a main body of the vacuum cleaner, a second base disposed at a front portion above the first base, a motor housing is disposed at an upper rear portion of the first base, a dust collecting unit secured to an upper portion of the second base, a duct connected to one end of a main body of the vacuum cleaner for guiding air suctioned from another end of the duct into the dust collecting unit, a hook formed on the duct for attaching the duct to the main body of the vacuum cleaner, and a parking portion inserted in an opening portion of the first base when secured to the second base, for parking the hook.

[0013] The parking device for a nozzle of a vacuum cleaner according to the present invention provides increased structural strength and durability of the vacuum

cleaner.

[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 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;

[0020] FIG. 5 is a frontal perspective view of a base of a vacuum cleaner according to an embodiment of the present invention;

[0021] FIG. 6 is a frontal perspective view of a base divided into a first base and a second base;

[0022] FIG. 7 is a sectional view taken along lines II-II' of FIG. 5;

[0023] FIG. 8 is an exploded perspective view of a dust collection unit according to the present invention;

[0024] FIG. 9 is a sectional view taken along lines I-I' of FIG. 3; and

[0025] FIG. 10 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

[0026] 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.

[0027] FIG. 1 shows a vacuum cleaner to which a dust collection unit according to the present invention can be applied.

[0028] 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 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.

[0029] 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.

[0030] 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, 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.

[0031] 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.

[0032] FIG. 2 shows the main body of the vacuum cleaner.

[0033] 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 70 for supportably fixing the cover 200 and the first and second bases 110 and 150.

[0034] 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.

[0035] 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.

[0036] 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 carrying handle 201 is pivoted to a vertical position and used to conveniently carry the main body 100.

[0037] A dust collection unit 400 is disposed in the main body behind 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 outside air.

[0038] 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.

[0039] 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 (not shown) 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.

[0040] 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.

[0041] FIG. 4 shows the main body of the vacuum cleaner.

[0042] Referring to FIG. 4, the second base 150 is disposed on a rear-top portion of the first base 110. A motor housing 300 is disposed on a rear portion of the first base 110. Then, the cover 200 is sequentially coupled to the first and second bases 110 and 150 to define the main body 100.

[0043] 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.

[0044] The first and second base 110 and 150 are stacked and aligned.

[0045] The base 110 and 150 consists of two components for the sake of structural strength; and the separate manufacturing of the two components allows the outer surface of one of the components to be manufactured having a smooth surface without grooves. Additionally, shocks inflicted on the main body of the vacuum cleaner via the base are absorbed by the base. Such shock-resistant bases are especially needed by multi-cyclone dust collection units employing multiple ducts for separating foreign objects via cyclone airflow.

[0046] A nozzle parking portion is formed on the second base 150. A detailed explanation of the structure of the nozzle parking portion will hereinafter be given.

[0047] FIG. 5 is a frontal perspective view of a base of a vacuum cleaner according to an embodiment of the present invention, and FIG. 6 is a frontal perspective view of a base divided into a first base and a second base.

[0048] Referring to FIGS. 5 and 6, a base according to the present invention, as previously explained, includes a first base 110 formed at the lowest portion of the main body of the vacuum cleaner and a second base 150 formed directly above the first base. Also, a nozzle parking portion is formed on the second base 150, and a dust collection unit 400 is disposed at the upper portion of the second base 150. The nozzle parking portion has a parking portion 156 of a predetermined structure for accommodating a pipe rest 7; and at a portion of the first base 110 to be formed flush with the parking portion 156 is an opening 113 for inserting the parking portion 156 therethrough.

[0049] FIG. 7 is a sectional view taken along lines II-II' of FIG. 5. Referring to FIG. 7, a detailed structural explanation of the nozzle parking portion will be given.

[0050] The parking portion 156 is recessed in its entirety, and includes a recessed groove 161 for accommodating the pipe rest 7, a fastening slope 158 formed to gradually recline inward from the opening portion of the of the recessed groove 161, and an insertion guide 160 for supporting the pipe rest 7 on both sides when the pipe rest 7 is inserted beyond a certain depth into the parking portion 156.

[0051] From either side of the parking portion 156 at a frontal end of the insertion guide 160 protrudes a fastening guide 157 protruding for a predetermined length upwards, for facilitating the insertion of the pipe rest 7 in the parking portion 156.

[0052] In addition, an insertion hole 159 is provided at the rear end of the parking portion 156 for securely aligning the second base 150 with respect to the first base 110; and the insertion hole 159 has a boss 114 protruding from the inside of the first base 110. The second base 150 can be securely positioned with respect to the first base 110 via the boss 114 and the insertion hole 159. The locations of the insertion hole 159 and the boss 114 can be interchanged. Because the first and second bases 110 and 150 can be firmly joined due to the boss 114 and the insertion hole 159, the boss and the insertion hole 159 can be collectively referred to as a supporting portion.

[0053] When the pipe rest 7 is parked on the parking portion 156, the weight imposed on the second base 150 is relayed in its entirety to the first base 110 through the boss 114, thereby allowing the weight of the expandable pipe to be firmly supported. Thus, the nozzle parking device according to the present invention has a structurally stronger base, due to the use of a pair of connected bases.

[0054] FIG. 8 shows the dust collection unit according to an embodiment of the present invention.

[0055] Referring to FIG. 8, 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.

[0056] In further detail, a collection body 406 is provided with a plurality of filtering chambers (refer to the reference numerals 423 and 424 of FIG. 9) and a plurality of storing chambers (refer to the reference numerals 417 and 416 of FIG. 9) for storing 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.

[0057] 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 a rear and a 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.

[0058] 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. The airflow preventing plates 403 and the blocking member 404 may be integrally formed with each other while the cone-shaped filter 405 may be provided as a separated part.

[0059] 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.

[0060] 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.

[0061] 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.

[0062] The internal structure and operation of the dust collection unit 400 will be described in more detail with reference to FIG. 9, which is a sectional view of FIG. 3 taken along line I-I'.

[0063] As described with reference to FIG. 9, 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.

[0064] The following is an explanation of the layout of the collection body 406.

[0065] 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.

[0066] 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.

[0067] 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.

[0068] When the cyclone airflow is generated in the first filtering chamber 423, 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.

[0069] The cone-shaped filter 405 may be detachably seated on a center of the separation plate 437 defining a top wall of the first filtering chamber 423. The cone-shaped filter 405 is typically provided with a plurality of pores through which the air passes.

[0070] The blocking member 404 is disposed under the cone-shaped filter 405 to prevent the settled foreign objects from flying. The blocking member 404 has a diameter that is increased as it goes downward to prevent the foreign objects from flying in a reverse direction. The airflow preventing plates 403 are disposed under the blocking member 404 at a predetermined gap to prevent the cyclone airflow from reaching the settled foreign objects, thereby basically preventing the settled foreign objects from flying.

[0071] The foreign objects filtered in the first filtering chamber 423 are stored in the first storing chamber 416 formed under the first filtering chamber 423. A bottom of the first storing chamber 416 is sealed by the first sealing member 415. 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.

[0072] 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.

[0073] 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.

[0074] 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.

[0075] 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.

[0076] The air whose foreign objects are filtered by the cyclone airflows is directed to the motor and then exhausted through the rear surface of the main body 100.

[0077] 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 fist cover 410, and the cover fixing member 411 fixing the second cover 409 to the first cover 410.

[0078] 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. 10.

[0079] Referring to FIG. 10, 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.

[0080] 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.

[0081] 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.

[0082] 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.

[0083] In order to support a pipe rest of an expandable pipe, the vacuum cleaner of the present invention provides a high-strength parking portion disposed at the lower portion of the vacuum cleaner, providing a user with a more reliable and improved product.

[0084] Also, the base forming the floor of the vacuum cleaner is multi-leveled for being firmly held by the nozzle parking portion, and is thus more applicable to multi cyclone dust collection units.

Claims

1. A vacuum cleaner with a suction assembly parking device, comprising:

a first base (110) disposed at a lowest portion of a main body (100) of the vacuum cleaner; and a second base (150) coupled to a top of the first base (110);
wherein said suction assembly parking device comprises:

an opening (113) defined by a portion of the first base (110); and
a parking portion (156) provided on the second base (150) and disposed to be lie inside the opening (113) and adapted to receive a mating hook portion (7) of a suction assembly for parking the suction assembly on the vacuum cleaner.

2. The vacuum cleaner according to claim 1, wherein the parking portion (156) is formed on a floor of the second base (156).

3. The vacuum cleaner according to claim 1 or 2, wherein the parking portion (156) includes a fastening guide (169) protruding from both ends and a recessed groove (161) centrally recessed in the parking portion (156).

4. The vacuum cleaner according to any one of claims 1 through 3, wherein the parking portion (156) becomes gradually deeper from an entrance thereof for inserting the hook portion (7) of the suction assembly therein.

5. The vacuum cleaner according to any one of the preceding claims, wherein the second base is disposed at an upper front portion of the first base.

6. The vacuum cleaner according to any one of the preceding claims, wherein the first base (110) has a motor housing (300) disposed at an upper rear portion thereof.

7. The vacuum cleaner according to any one of the preceding claims, wherein the suction assembly parking device comprises includes a supporting portion (159,114) having a first point on the parking portion (156) connected to a second point on the first base (110) opposite the first point, thereby providing a mutual reinforcement of the first and second bases (110, 150).

8. The vacuum cleaner according to claim 7, wherein the first point is an insertion hole (159) formed on one end of the parking portion (156), and the second point is a boss (114) extending upwardly from the first base (110).

9. The vacuum cleaner according to any one of the preceding claims, wherein the parking portion (156) extends from a rear portion of the main body (100) of the vacuum cleaner.

10. The vacuum cleaner according to any one of the preceding claims, wherein an outer portion of the parking portion (156) is substantially flush with the opening (113) in the first base (110).

11. The vacuum cleaner according to any one of the preceding claims, wherein the hook receiving portion of the parking portion (156) is recessed from an outer surface of the first base (110).

FIG.1

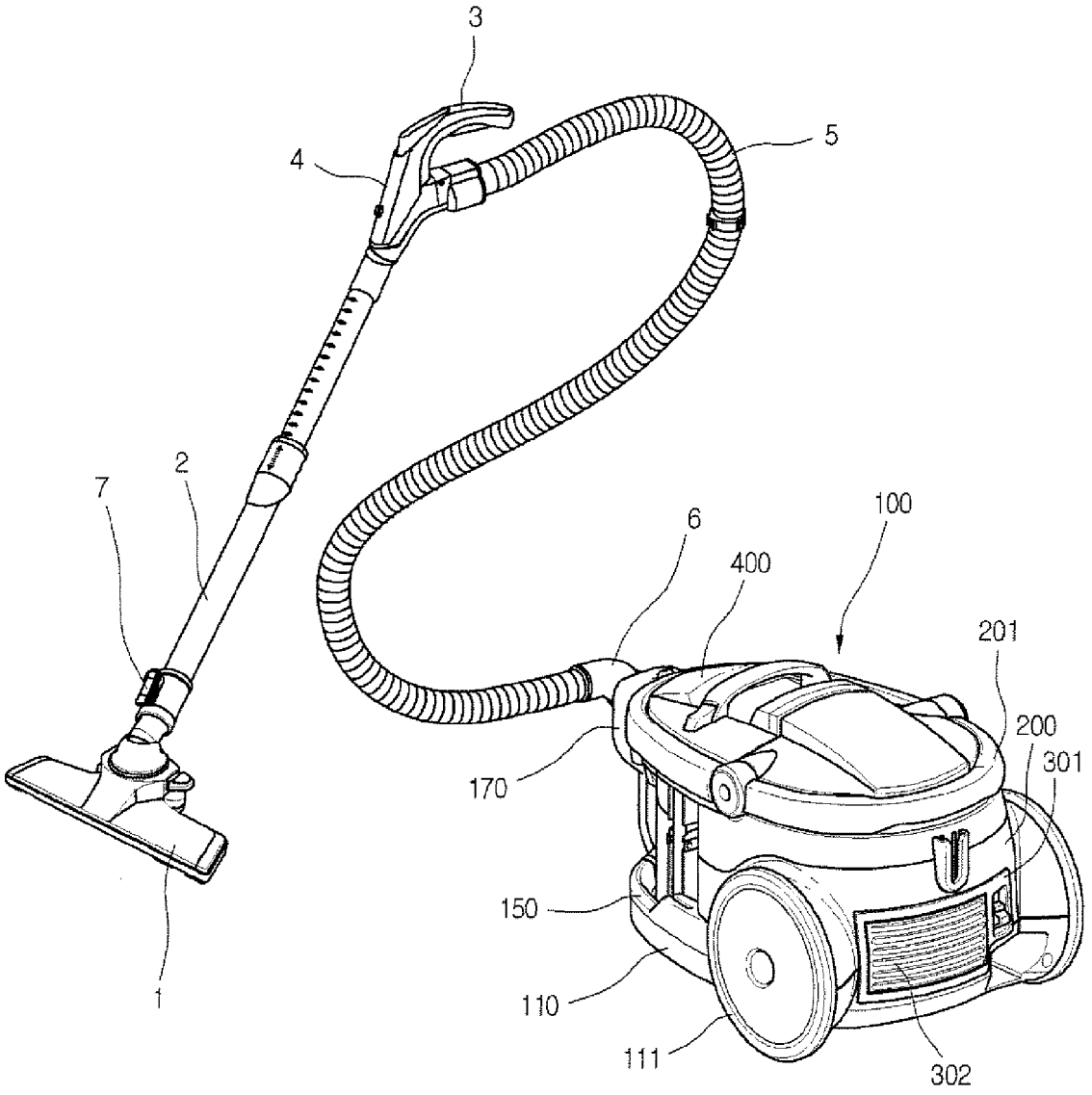


FIG.2

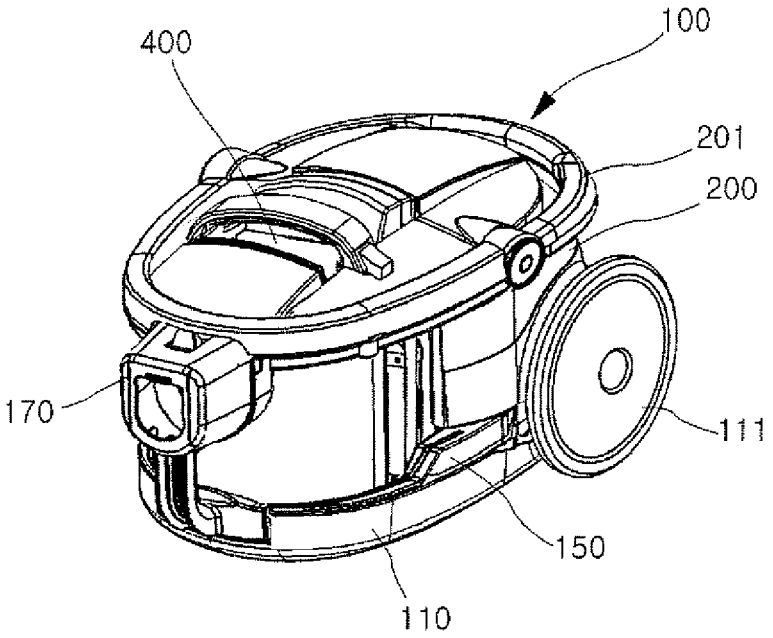


FIG.3

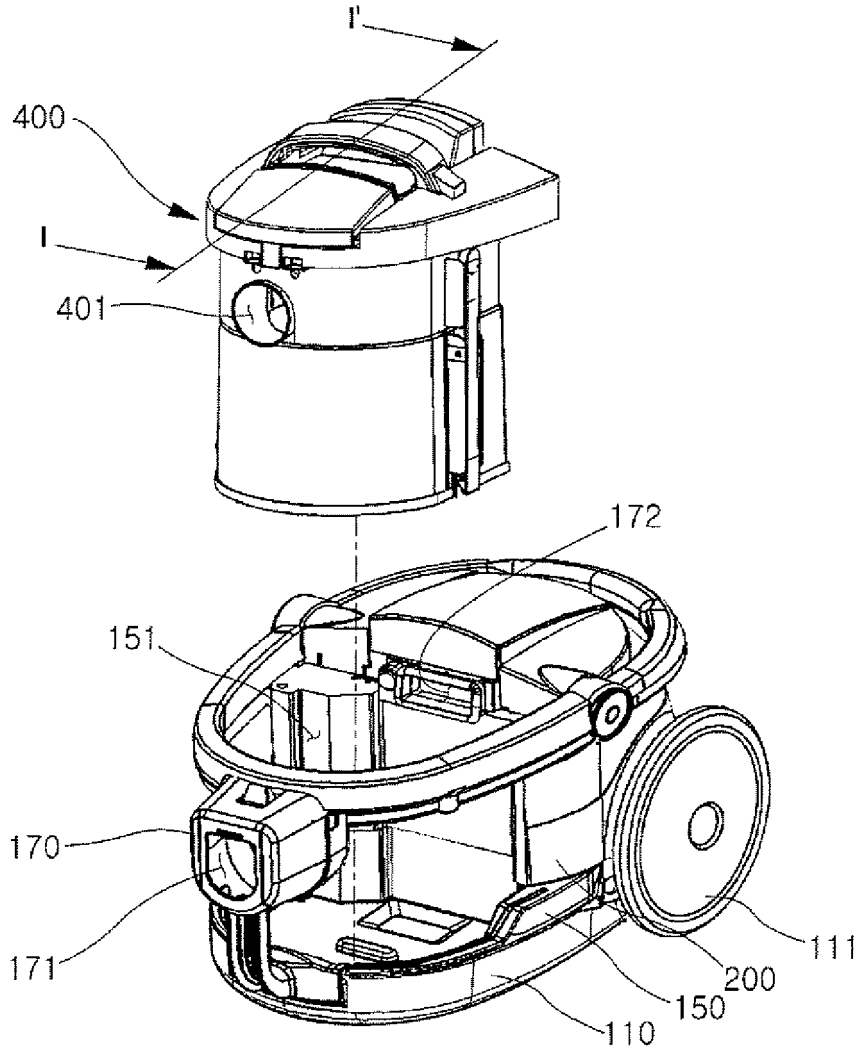


FIG.4

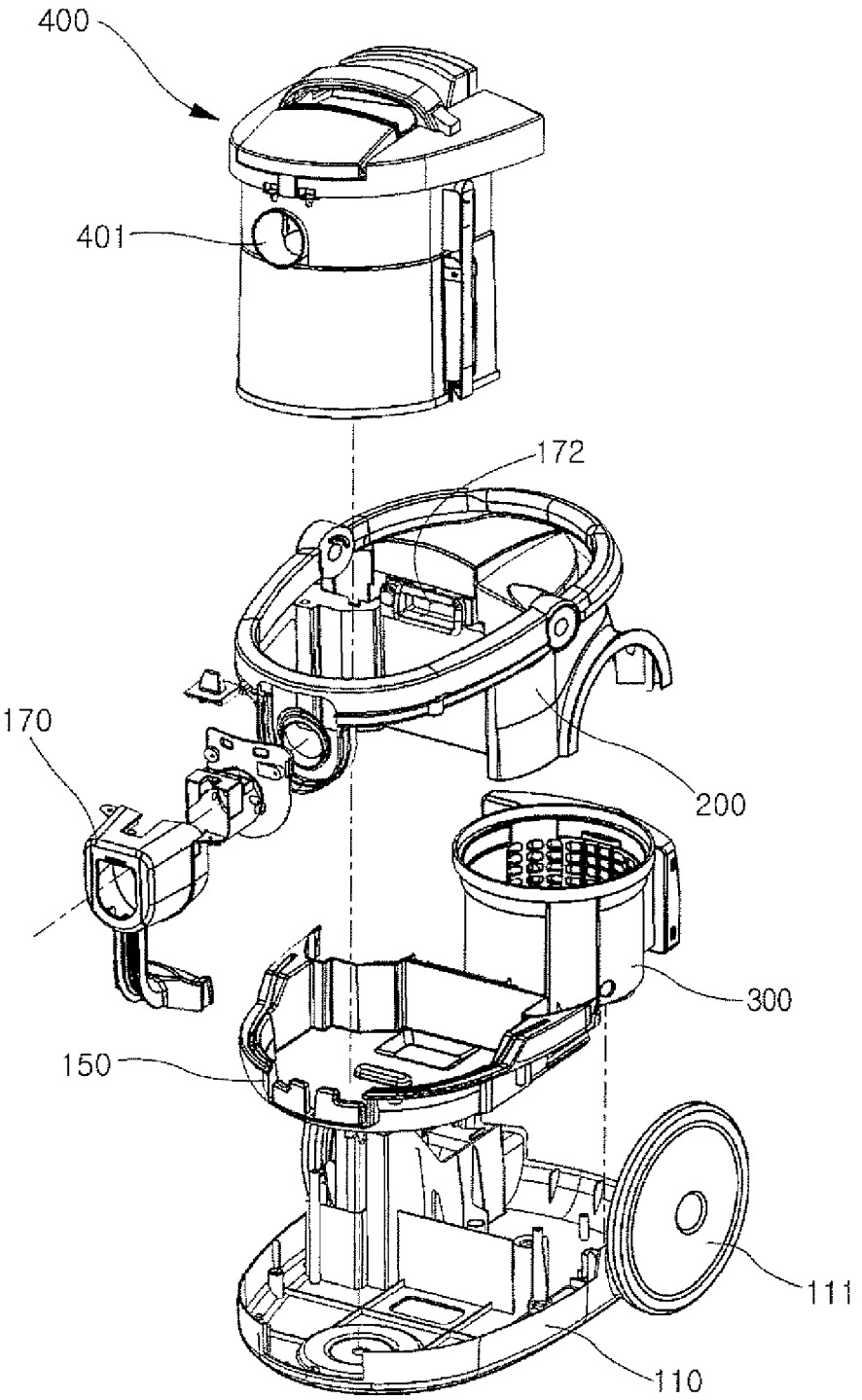


FIG.5

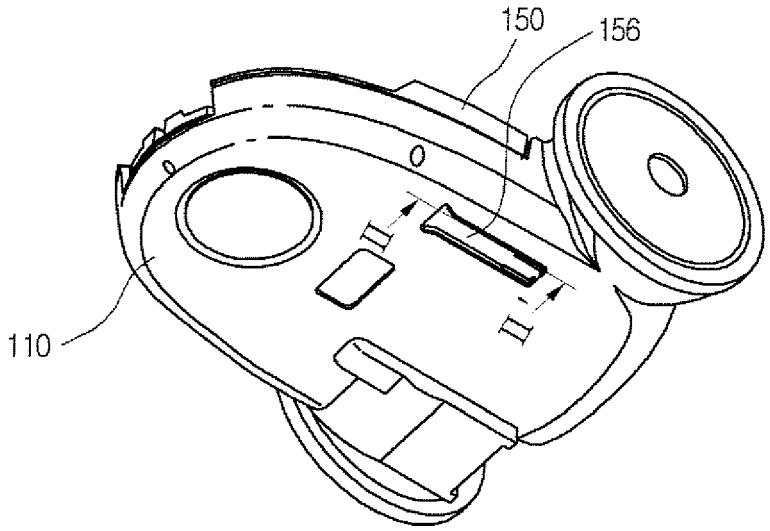


FIG.6

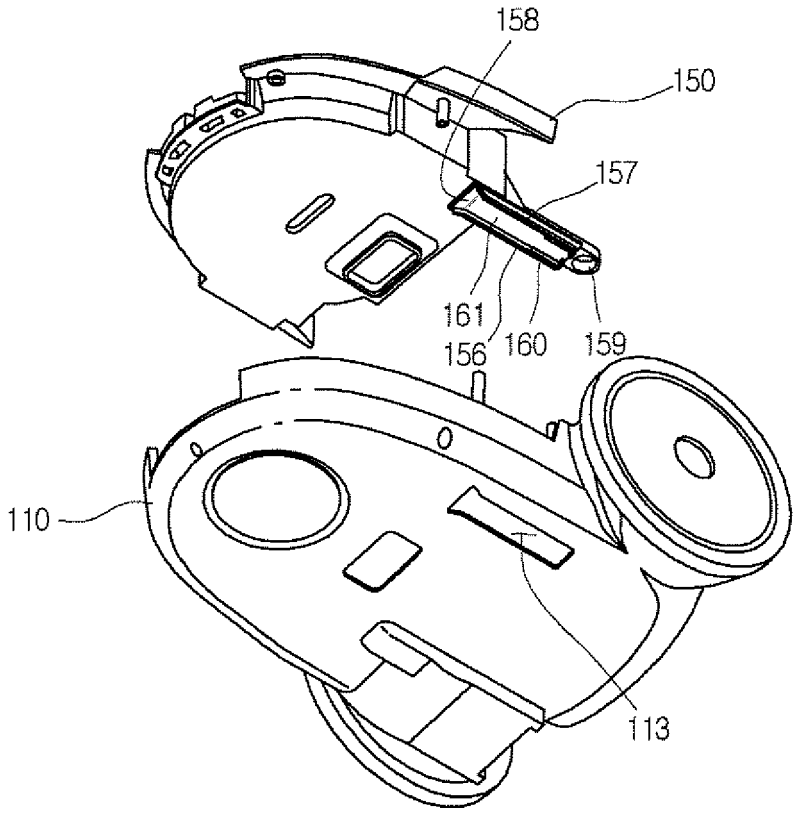


FIG.7

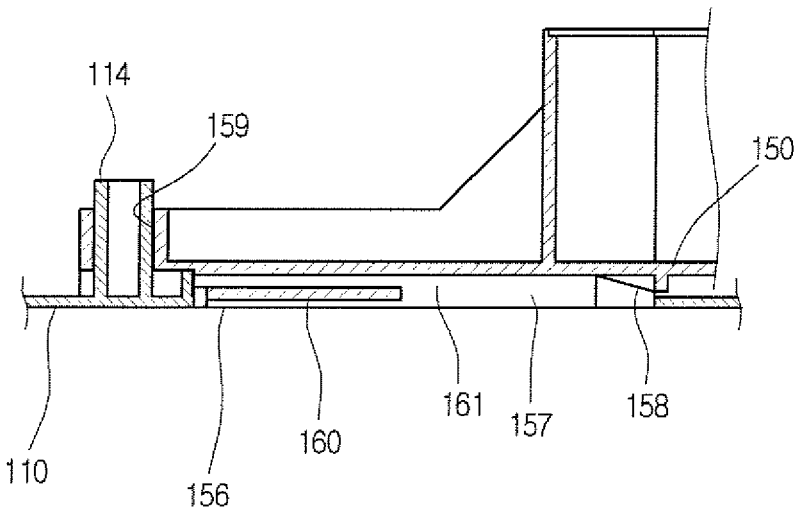


FIG.8

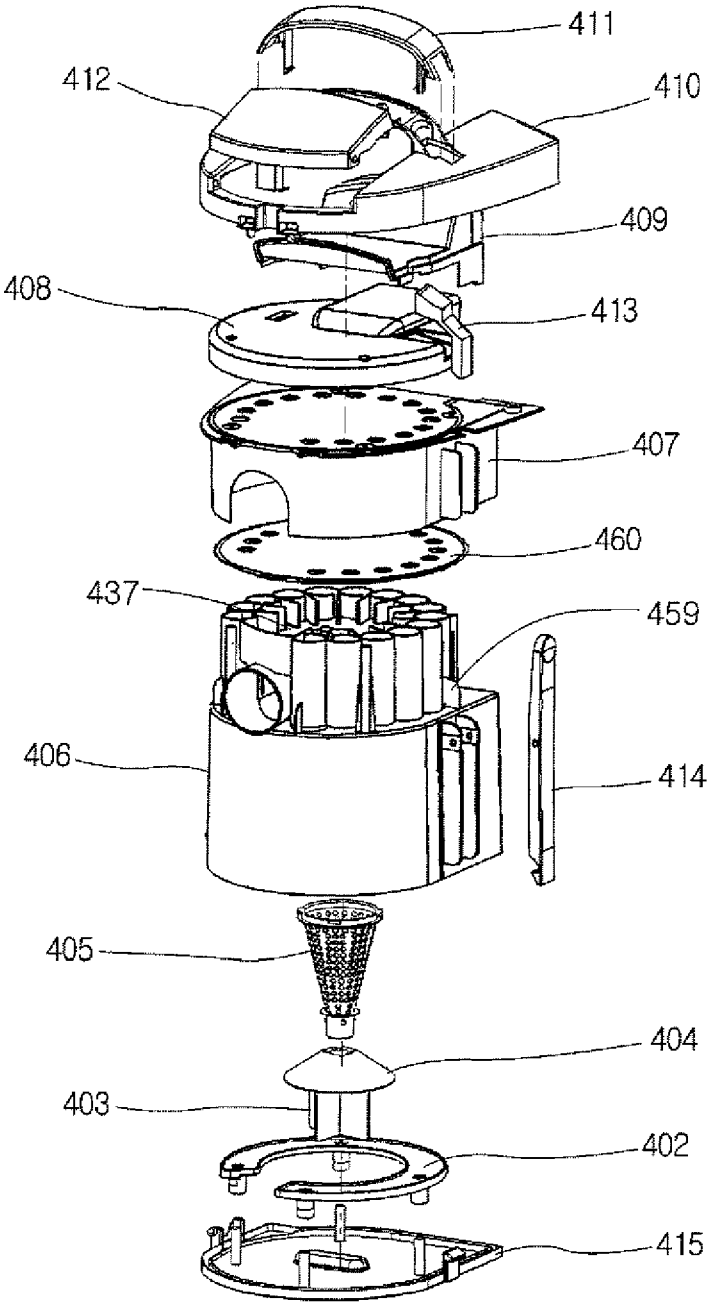

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FIG.9

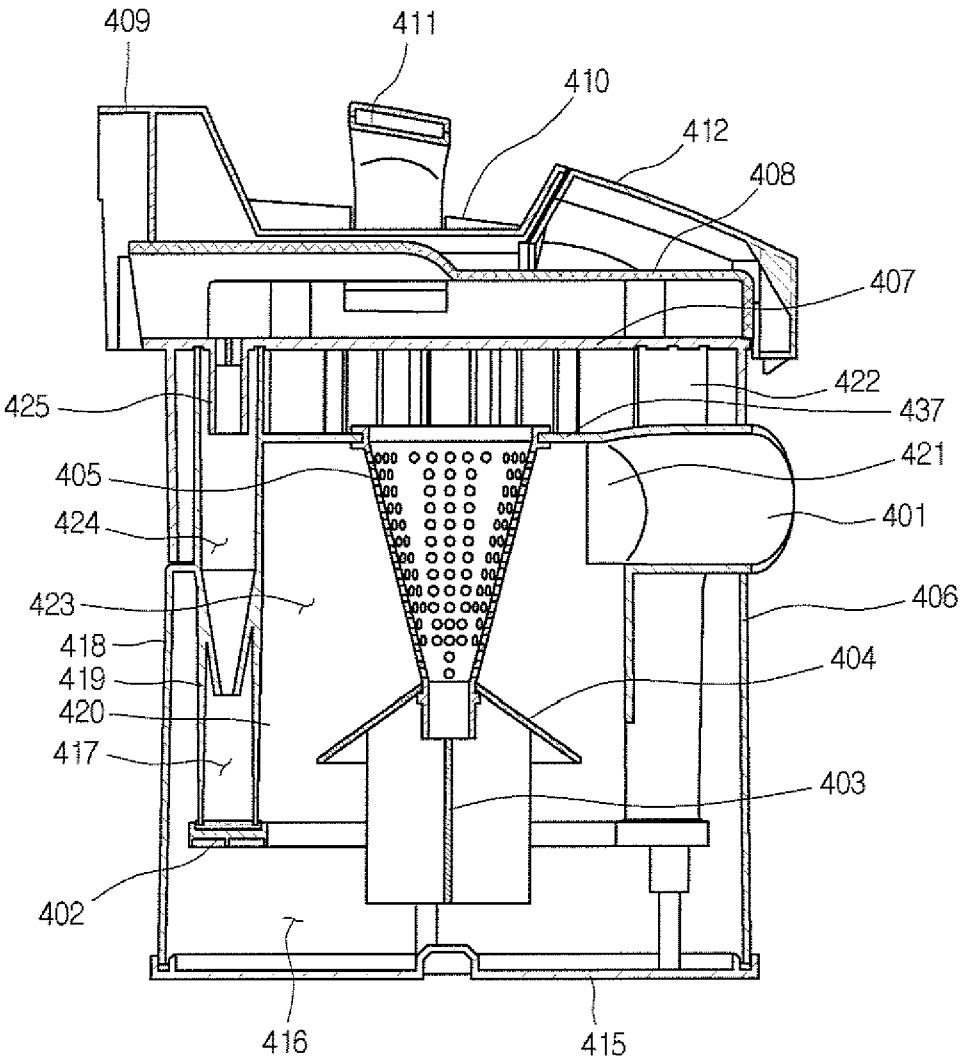
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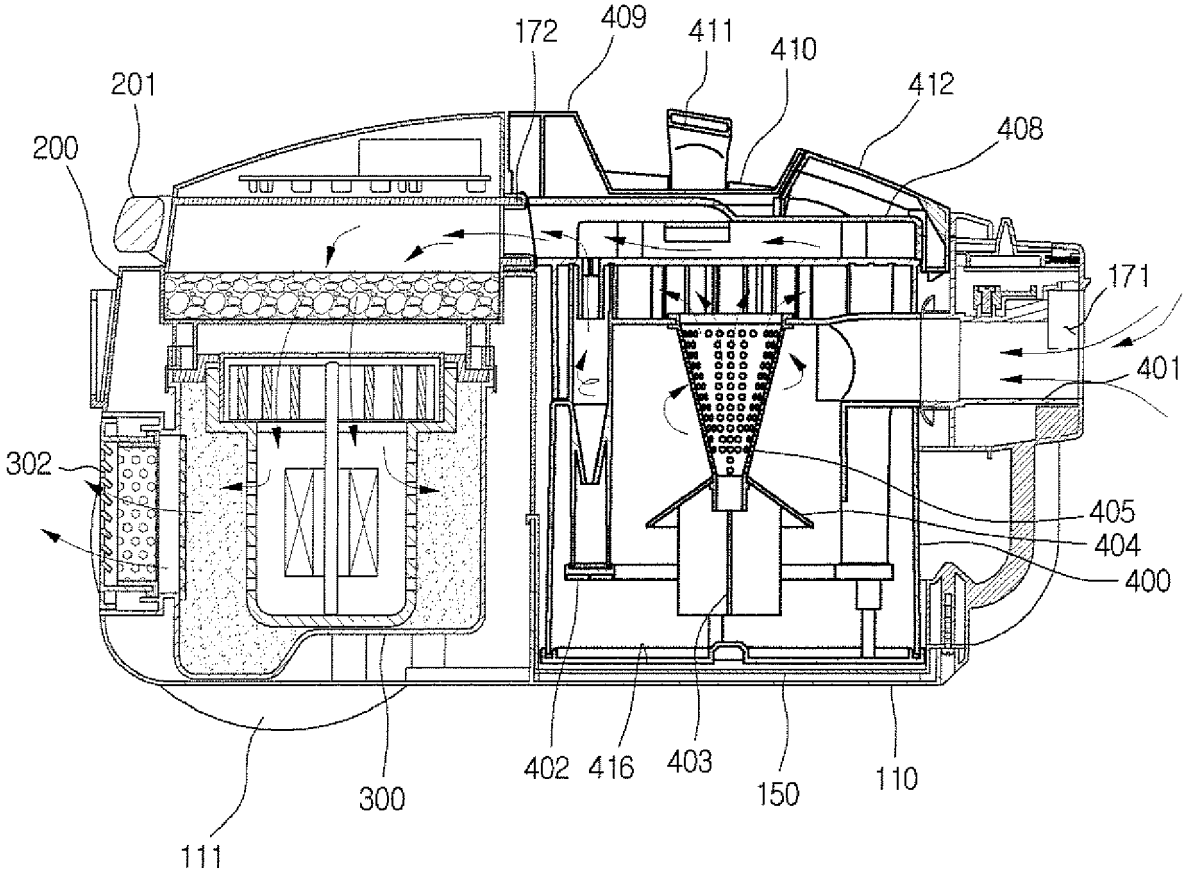
FIG.10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Application Number
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Place of search	Date of completion of the search	Examiner
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