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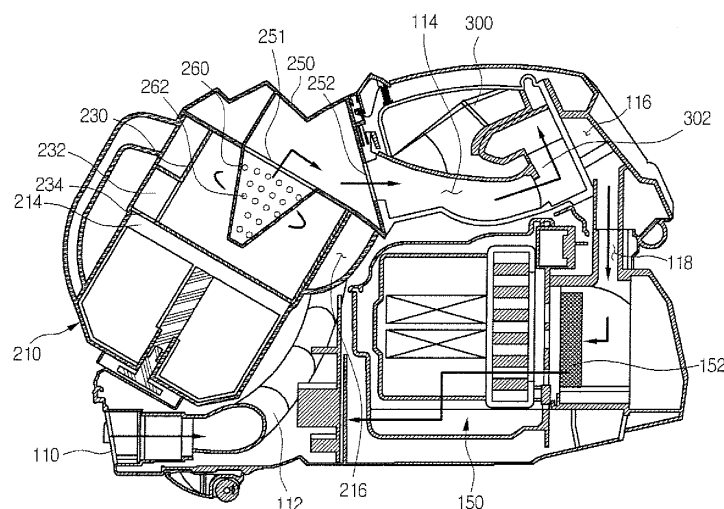
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(54) **Vacuum cleaner having primary and secondary cyclone units**

(57) A vacuum cleaner (10) is provided. The vacuum cleaner (10) includes a main body (100) in which a suction generating unit is disposed, a dust collection unit (200) detachably mounted on a front portion of the main body (100) and having a primary cyclone unit for separating

dusts contained in air, a secondary cyclone unit (300) provided in the main body (100), and a discharge unit (120) formed in the main body (100) to discharge air whose dusts are separated at the secondary cyclone unit (300) out of the main body (100).

Fig. 7



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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a vacuum cleaner, and more particularly, to a vacuum cleaner that can maximize the dust collection volume and easily discharge the collected dusts.

Description of the Related Art

[0002] Generally, a vacuum cleaner is a device that can suck air containing dusts using suction generated by a motor mounted in a main body and filter off the dusts in a dust filtering unit.

[0003] The vacuum cleaner is classified into a canister type and an upright type. The canister type vacuum cleaner includes a main body and a suction nozzle connected to the main body by a connection pipe. The canister type vacuum cleaner includes a main body and a suction nozzle integrally formed with the main body.

[0004] Meanwhile, a dust collection unit mounted in a cyclone type vacuum cleaner separates dusts from air using a cyclone principle and the air whose dusts are removed is discharged out of the main body.

[0005] In recent years, in order to improve the dust collection performance, a multi-cyclone dust collection unit having a plurality of cyclone units has been proposed.

[0006] That is, the multi-cyclone dust collection unit includes a dust collection body defining an outer appearance, a primary cyclone unit for separating relatively large-sized dusts contained in the air, and a secondary cyclone unit to separate relatively small-sized dusts contained in the air.

[0007] The dusts separated by the primary and secondary cyclone units are reserved in respective first and second dust reserving units formed in the dust collection body.

[0008] The conventional dust collection unit includes both of the primary and secondary cyclone units.

[0009] The dust collection unit is detachably mounted in the main body to discharge the collected dusts.

[0010] However, since the conventional dust collection unit includes both of the primary and secondary cyclone units, a space for the main chamber is structurally reduced. Therefore, the dust collection volume of the main chamber is reduced and thus the user must more frequently empty the dust collection unit.

[0011] In addition, since the conventional dust collection unit includes both of the primary and secondary cyclone units, the weight of the dust collection unit increases and thus it is difficult for the user to handle the vacuum cleaner when mounting the dust collection unit or discharging the collected dusts.

[0012] Sixth, the interior room may be contaminated again during the process for separating the dust collec-

tion unit from the main body empty the dust collection unit or dumping the dusts out of the dust collection unit. Thus, there is a need to clean the room again.

SUMMARY OF THE INVENTION

[0013] 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.

[0014] An object of the present invention is to provide a vacuum cleaner that is structurally simple while maximizing the dust collection volume.

[0015] Another object of the present invention is to provide a vacuum cleaner that can easily discharge the collected dusts.

[0016] 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.

[0017] 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 including: a cyclone unit separating dust from air, a dust collecting unit including a dust storage unit storing dust separated from the cyclone unit, and a main body having the dust collecting unit, characterized in that the vacuum cleaner comprises one or more cyclone units in the dust collecting unit and the rest of the cyclone unit in the main body.

[0018] The above-described vacuum cleaner has the following advantages.

[0019] First, since the primary cyclone unit is provided on the dust collection unit while the secondary cyclone unit is separated from the dust collection unit and provided on the main body unit, the structure of the dust collection unit is simplified and light-weighted. Therefore, the user can more conveniently handle the dust collection unit.

[0020] Second, although the secondary cyclone unit is separated from the dust collection unit, the dusts separated from the secondary cyclone unit are still reserved in the dust collection unit. Therefore, only the dust collection unit is separated from the main body unit and emptied.

[0021] Third, since the second dust collection unit for reserving the dusts separated by the secondary cyclone unit is provided at an outer side of the first dust reserving unit for reserving the dusts separated by the first cyclone unit, the size of the first dust collection unit increases to maximize the dust collection volume.

[0022] Fourth, since the dust collection unit is separated from the main body in a state where it is enclosed,

the recontamination if the indoor room by discharging the dusts by opening a cover member at a location where the user wants to discharge the dusts.

[0023] Fifth, since the cover member provided on an upper portion of the dust collection unit is designed to simultaneously open and close the first and second dust collection units, the collected dusts can be effectively discharged.

[0024] 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

[0025] 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:

Fig. 1 is a perspective view of a vacuum cleaner according to an embodiment of the present invention; Fig. 2 is a perspective view of the vacuum cleaner Fig. 1, when a dust collection unit is separated from the vacuum cleaner;

Fig. 3 is a perspective view of a dust collection unit according to an embodiment of the present invention;

Fig. 4 is a sectional view taken along line I-I' of Fig. 3; Fig. 5 is a sectional view taken along line II-II' of Fig. 3;

Fig. 6 is a perspective view illustrating a state where a guide cover is separated from the vacuum cleaner; Fig. 7 is a sectional view of the vacuum cleaner of Fig. 1;

Fig. 8 is a sectional view of a dust collection unit according to another embodiment of the present invention; and

Fig. 9 is a perspective view of a vacuum cleaner according to another embodiment of the present invention.

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 is a perspective view of a vacuum cleaner according to an embodiment of the present invention, Fig. 2 is a perspective view of the vacuum cleaner Fig. 1, when a dust collection unit is separated from the vacuum cleaner, and Fig. 3 is a perspective view of a dust

collection unit according to an embodiment of the present invention.

[0028] Referring to Figs. 1 through 3, a vacuum cleaner 10 includes a main body 100 and a dust separation device for separating the dusts contained in the air sucked into the main body 100.

[0029] The vacuum cleaner 10 further includes a suction nozzle for sucking the air containing the dusts and a connection pipe for connecting the suction nozzle to the main body 100.

[0030] Since the structure of the suction nozzle and connection pipe is identical to that of the conventional art, the detailed description thereof will be omitted herein.

[0031] A main body sucking portion 110 is formed on a frontlower end portion of the main body 100 to allow the air to be sucked from the suction nozzle (not shown) into the main body 100.

[0032] A main body discharge unit 120 is formed on a side surface of the main body 100 to discharge the air separated from the dusts.

[0033] In addition, a main body handle 140 is formed on an upper portion of the main body 100.

[0034] A guide cover 160 is coupled to a rear portion of the main body 100 to guide the air whose dusts are removed by the dust separation device to the main body 100.

[0035] Meanwhile, the dust separation device includes a dust collection unit 200 for primarily separating the dusts contained in the air and a secondary cyclone unit provided on the main body 100 for secondarily separating the dusts from the air whose dusts is primarily separated by the dust collection unit 200.

[0036] The dust collection unit 200 is detachably mounted on a front portion of the main body 100. As described above, in order to detachably mount the dust collection unit 200 on the main body 100, a mounting/dismounting lever 142 is provided on the handle 140 of the main body 100 and a hooking end 256 interlocked with the mounting/dismounting lever 142 is formed on the dust collection unit 200.

[0037] The dust collection unit 200 includes a primary cyclone unit for generating the cyclone current and a dust collection body 210 having a dust reserving portion in which the dusts separated by the primary cyclone unit.

[0038] Here, the dust collection unit 200 is detachably mounted on the main body 100 and communicates with the secondary cyclone unit 300 and the main body 100 as the dust collection unit 200 is mounted on the main body 100.

[0039] The main body 100 is provided with an air discharge hole 130 for discharging the air sucked into the main body 100 to the dust collection unit 200. The dust collection unit 200 is provided with a first sucking hole 212 through which the air is sucked from the air discharge hole 130.

[0040] At this point, the first sucking hole 212 is formed in a tangent direction of the dust collection unit 200 so as to generate the cyclone current in the dust collection

unit 200.

[0041] The dust collection unit 200 is provided with a first discharge hole 252 through which the air whose dusts are separated at the primary cyclone unit is discharged. The main body 100 is provided with a connection passage 114 for guiding the air discharged through the first discharge hole 252 to the secondary cyclone unit 300.

[0042] Meanwhile, the secondary cyclone unit 300 includes a plurality of small cyclones that are cone-shaped. The small cyclones are connected in parallel.

[0043] The secondary cyclone unit 300 is horizontally arranged on a rear-upper portion of the main body 100. That is, the secondary cyclone unit 300 is arranged at a predetermined angle with respect to the main body 100.

[0044] As described above, as the secondary cyclone unit 300 is horizontally arranged on the main body 100, the space efficiency of the vacuum cleaner considering the arrangement of the vacuum motor.

[0045] Since the secondary cyclone unit 300 is separated from the dust collection unit 200 and provided on the main body 100, the structure of the dust collection unit 200 is simplified and light-weighted. Therefore, the user can easily handle the dust collection unit 200.

[0046] Here, the dusts separated by the secondary cyclone unit 300 are reserved in the dust collection unit 200.

[0047] Therefore, the dust collection body 210 is provided with a dust sucking hole 254 through which the dusts separated by the second cyclone unit 300 is sucked and a dust reserving portion in which the dusts separated by the secondary cyclone unit 300 are reserved.

[0048] That is, the dust reserving portion 210 formed in the dust collection body 210 includes a first dust reserving portion for reserving the dusts separated by the primary cyclone unit and a second dust reserving portion for reserving the dusts separated by the secondary cyclone unit 300.

[0049] That is, in the present embodiment, although the secondary cyclone unit 300 is separated from the dust collection unit 200 and provided on the main body 100, the dusts separated at the secondary cyclone unit 300 are reserved in the dust collection unit 200.

[0050] Here, the secondary cyclone unit 300 may be inclined downward toward the dust collection unit 200 so that the separated dusts can be effectively directed to the dust collection unit 200.

[0051] The following will describe the operation of the above-described vacuum cleaner 100.

[0052] First, when electric power is applied to the vacuum cleaner 10, suction is generated by the vacuum motor and thus the air containing the dusts is sucked into the suction nozzle by the generated suction. The air introduced into the suction nozzle is directed into the dust collection unit 200 along a passage formed in the main body.

[0053] When the air containing the dusts is sucked into the dust collection unit 200, the dusts are primarily separated at the first cyclone unit. The separated dusts are

reserved in the dust collection body 210. On the contrary, the air whose dusts are separated is discharged from the dust collection unit 200 and introduced into the main body 100. Then, the air is directed to the secondary cyclone unit 300 by the connection passage 114 provided on the main body 100.

[0054] The dusts contained in the air introduced into the secondary cyclone unit 300 are further separated and the separated dusts are introduced and reserved in the dust collection unit 200. Then, the air is finally discharged to an external side through the main body discharge portion 120 along a passage formed in the main body 100.

[0055] The following will describe the dust collection unit 200 in more detail.

[0056] Fig. 4 is a sectional view taken along line I-I' of Fig. 3 and Fig. 5 is a sectional view taken along line II-II' of Fig. 3.

[0057] Referring to Figs. 4 and 5, the dust collection unit 200 includes a dust collection body 210 defining an outer appearance, a primary cyclone unit 230 selectively received in the dust collection body 210 and separating the dusts contained in the air, and a cover member 250 for selectively opening and closing an upper portion of the dust collection body 210.

[0058] The dust collection body 210 is formed in a cylindrical shape and defines a dust reserving portion for reserving the separated dusts.

[0059] The dust reserving portion includes a first dust reserving portion 214 for reserving the dusts separated at the primary cyclone unit 230 and a second dust reserving unit 216 for reserving the dusts separated at the secondary cyclone unit 300.

[0060] Here, the dust collection body 210 includes a first wall 211 forming the first dust reserving portion 214 and a second wall 212 for forming the second dust reserving portion 216. That is, the second wall 212 is designed to enclose a portion of the second wall 211.

[0061] Accordingly, the second dust reserving portion 216 is formed at an outer side of the first dust reserving portion 214.

[0062] As described above, as the second dust reserving portion is formed at an outer side of the first dust reserving portion 214, the size of the first dust reserving portion 214 can be maximized to increase the dust collection volume of the first dust reserving portion 214.

[0063] The first wall 211 is provided with a circumferential step 219 for supporting a lower end of the first cyclone unit 230 received therein. Therefore, with reference to the circumferential step 219, the upper portion of the first dust reserving portion 214 has a diameter greater than that of the lower portion.

[0064] A pair of pressing plates 221 and 222 are provided on the dust collection body 210 to reduce the volume of the dusts reserved in the first dust reserving unit 214 and thus increase the dust collection amount.

[0065] Here, the pair of pressing plates 221 and 222 acts to each other to compress the dusts to reduce the volume of the dusts. Therefore, the density of the dusts

reserved in the first dust reserving unit 214 increases, the maximum dust collection amount of the first dust reserving unit 214 increases.

[0066] The pressing plate 222 may be a stationery plate fixed on a fixing shaft 224 formed on a bottom of the dust collection body 210. The pressing plate 221 may be a rotational plate fixed on a rotational shaft coupled to the fixing shaft 224.

[0067] A driven gear 228 is coupled to the rotational shaft 226 to rotate by a driving source.

[0068] Here, the main body 100 is provided with a driving gear engaged with the driven gear 228 and a driving motor for driving the driving gear.

[0069] Therefore, when the driving motor is driven, the driving gear and the driven gear 228 rotate to rotate the rotational plate 221 by the rotation of the driven gear 228.

[0070] At this point, the rotational plate 221 may rotate in both directions so as to compress the dusts at both sides of the fixing plate 222. Accordingly, the driving motor may be a synchronous motor.

[0071] In the present embodiment, although one of the pressing plates 221 and 222 is provided to be movable in the dust collection body 210, the present invention is not limited to this embodiment. For example, both of the pressing plates 221 and 222 may be provided to be movable in the dust collection body 210.

[0072] Meanwhile, the dust collection body 210 is opened at the upper portion so that the user can discharge the dusts by turning the same over. The cover member 250 is detachably coupled to the upper portion of the dust collection body 210.

[0073] In order to discharge the dusts out of the dust collection body 210, the primary cyclone unit 230 is separated together with the cover member 250. Therefore, the primary cyclone unit 230 is coupled to a lower portion of the cover member 250.

[0074] In the present embodiment, although the primary cyclone unit 230 is coupled to the cover member 250, the present invention is not limited to this embodiment. For example, the primary cyclone unit 230 may be integrally formed with the cover member 250.

[0075] Meanwhile, a dust guide passage 232 is formed in the primary cyclone unit 230 to effectively discharge the dusts to the primary dust reserving unit 214.

[0076] Here, the dust guide passage 232 allows the air to be sucked in the tangent direction and directed downward.

[0077] Therefore, an inlet 233 of the dust guide passage 232 is formed on a side surface of the primary cyclone unit 230 and an outlet 234 of the dust guide passage 232 is formed on a bottom of the primary cyclone unit 230.

[0078] Meanwhile, the cover member 250 is detachably coupled to the upper portion of the dust collection body 210. That is, the cover member 250 opens and closes simultaneously the first and second dust reserving portions 214 and 216.

[0079] Therefore, when the user separate the cover member 250 to which the primary cyclone unit 230 is

coupled in order to discharge the dusts reserved in the first and second dust reserving portions 214 and 216, the upper portion of the dust collection body 210 is opened. Then, the user turns the dust collection body 210 over to discharge the dusts.

[0080] At this point, in order to empty the dust collection body 210, the user carries the dust collection body 210 to a trash basket or to an outdoor and empties the dust collection body 210 to prevent the indoor side from being recontaminated.

[0081] In addition, the cover member 250 is provided at a bottom with an air discharge hole 251 through which the air whose dusts are separated at the primary cyclone unit 230 is discharged. An upper portion of a filter member 260 provided with a plurality of pores 262 is coupled to an outer circumference of the air discharge hole 251.

[0082] Accordingly, the air whose dusts are primarily separated at the primary cyclone unit 230 is discharged through the air discharge hole 251 via the filter member 260.

[0083] In addition, a passage 253 for guiding the air to the first discharge hole 252 is formed in the cover member 250. That is, the passage 253 functions as a passage for connecting the discharge hole 251 to the first discharge hole 252.

[0084] In addition, the cover member 250 is provided with a dust sucking portion 254 through which the dusts separated at the secondary cyclone unit 300 is introduced and a dust discharge hole 257 through which the air introduced into the cover member 250 is discharged to the second dust reserving portion 216.

[0085] The dust sucking hole 254 is formed on a top of the cover member 250. As shown in Fig. 3, the dust sucking hole 254 is provided by two that are symmetrically disposed at both sides of the first discharge hole 252. The dust discharge hole 257 is formed on a bottom of the cover member 250.

[0086] As described above, as the dust sucking hole 254 is formed on the top of the cover member 250 and the dust discharge hole 257 is formed on the bottom of the cover member 250, a space is defined between the dust sucking hole 254 and the dust discharge hole 257.

[0087] Therefore, the dusts sucked through the dust sucking hole 254 is preferably designed to allow the dust to be effectively moved to the dust discharge hole 257. To realize this, a guide rib 258 is provided to allow the dusts sucked through the dust sucking hole 254 to be effectively moved to the second dust reserving portion 216 through the dust discharge hole 257.

[0088] The dust guide rib 258 extends from the dust sucking hole 254 to the dust discharge hole 257. Therefore, the dust guide rib 258 has a first side corresponding to the dust sucking hole 254 and a second side corresponding to the dust discharge hole 257.

[0089] By the dust guide rib 258, a dust passage along which the dusts separated by the secondary cyclone unit 300 flow is formed on the cover member 250.

[0090] Therefore, the dusts introduced through the

dust sucking hole 254 can be effectively directed to the dust discharge hole 257, thereby preventing the dusts introduced into the dust sucking hole 254 from accumulating in the cover member 250.

[0091] As described above, according to a feature of the present embodiment, the primary cyclone unit 230 is provided in the dust collection unit 200 and the secondary cyclone unit 300 is provided in the main body 100.

[0092] However, the cyclone unit may further include a third cyclone unit. In this case, the third cyclone unit is also provided in the main body 100.

[0093] Alternatively, the primary and secondary cyclones units may be provided in the dust collection unit 200 while the third cyclone unit is provided in the main body 100.

[0094] That is, according to the present invention, among a plurality of cyclone units, one or more cyclone units are provided in the dust collection unit 200 and the rest are provided in the main body.

[0095] Alternatively, the cyclone unit provided in the dust collection unit 200 may be called a dust collection cyclone and the cyclone provided in the main body 100 may be called a main body cyclone. One or more dust collection cyclones and one or more main body cyclone may be provided.

[0096] Fig. 6 is a sectional view of the vacuum cleaner.

[0097] Referring to Fig. 6, the secondary cyclone unit 300 is provided on the upper portion of the main body 100.

[0098] A connection passage 114 is provided on the lower portion of the secondary cyclone unit 300 to guide the air discharge from the dust collection unit 200 to the secondary cyclone unit 300.

[0099] A second sucking hole 302 is formed on the secondary cyclone unit 300 to allow air passed through the connection passage 114 to be sucked into the secondary cyclone unit 300.

[0100] At this point, in order to direct the air in a tangent direction of the secondary cyclone unit 300, a guide rib 304 is formed near the second sucking hole 302 in the tangent direction of the secondary cyclone unit 300.

[0101] Meanwhile, the main body 100 is provided with an air sucking hole (118 of Fig. 7) through which the air whose dusts are removed at the secondary cyclone unit 300 is formed.

[0102] Herein, the air sucking hole 118 and the secondary cyclone unit 300 communicate with each other when the guide cover 160 is mounted in the secondary cyclone unit 300 and main body 100.

[0103] Therefore, the guide cover 160 shields the secondary cyclone unit 300 and, at the same time, forms a discharge passage (116 of Fig. 7) through which the air discharge from the secondary cyclone unit 300 is introduced into the air sucking hole 118.

[0104] The following will describe the operation of the above-described vacuum cleaner 10.

[0105] Fig. 7 is a sectional view of the vacuum cleaner.

[0106] Referring to Fig. 7, when electric power is applied to the vacuum motor 150 of the vacuum cleaner 10,

suction is generated by the vacuum motor 150 and thus the air containing the dusts is sucked into the suction nozzle by the generated suction.

[0107] The air sucked through the suction nozzle is directed into the main body 100 through the main body sucking portion 110 and then directed to the dust collection unit 200 through the communication passage 112.

[0108] That is, the air containing the dusts is sucked in the tangent direction of the primary cyclone unit 230 through the first sucking hole 212 of the dust collection body 210. Then, the sucked air rotates downward along the inner circumference of the primary cyclone unit 230, in the course of which the air and dusts are separated by the centrifugal force.

[0109] The air whose dusts are separated passes through the filter member 260, in which course of which the dusts of the air are further filtered off. Then, the air is discharged out of the dust collection unit 200 through the first discharge hole 252 and the discharge hole 251.

[0110] Meanwhile, the separated dusts are introduced into the dust guide passage 232 in the tangent direction while rotating along the inner circumference of the primary cyclone unit 230.

[0111] Then, the dusts introduced into the dust guide passage 232 changes its flow direction in the dust guide passage 232 and move downward through the discharge hole 234 along an outer circumference of the primary cyclone unit 230 to be reserved in the first dust reserving unit 214.

[0112] Meanwhile, the air discharged through the first discharge hole 252 is introduced into the main body 100. Then, the air is introduced into the secondary cyclone unit 300 via the connection passage 114.

[0113] Then, the air is guided to the inner wall of the secondary cyclone unit 300 in the tangent direction of the through the second sucking hole 310 formed on an end of the connection passage 114 and thus the dusts contained in the air are further separated.

[0114] Then, the air is introduced into the discharge passage 118 formed in the main body 100 and discharge of the main body 100 via the motor pre-filter 152, vacuum motor 150 and main body discharge portion 120.

[0115] Meanwhile, the separated dusts are introduced into the dust collection unit 200 through the dust sucking hole 254 and reserved in the second dust reserving unit 216.

[0116] In addition, in order to empty the dust collection body 210, the user separates the dust collection unit 200 from the main body 100.

[0117] Then, the user separates the cover member 250 to which the primary cyclone unit 230 is coupled is separated from the dust collection unit 200. The dust collection body 210 is turned over to discharge the dusts.

[0118] Fig. 8 is a sectional view of a dust collection unit according to another embodiment of the present invention and Fig. 9 is a perspective view of a vacuum cleaner according to another embodiment of the present invention.

[0119] A vacuum cleaner of this embodiment is substantially identical to that of the foregoing embodiment of Figs. 1 through 7 except for a second dust reserving portion is separated from the dust collection unit. Therefore, the following will describe the different portion.

[0120] Referring to Figs. 8 and 9, a dust collection unit 400 of this embodiment includes a dust collection body 410 having a first dust reserving portion 414, a primary cyclone unit 430 selectively received in the dust collection body 210 and separating the dusts contained in the air, and a cover member 450 for selectively opening and closing an upper portion of the dust collection body 410.

[0121] A secondary cyclone unit 300 for further separating the dusts from the air passed through the primary cyclone unit 430 and a dust collection container forming a second dust reserving portion 510 for reserving the dusts separated at the secondary cyclone unit 300 are reserved are provided in the main body 100.

[0122] That is, the dusts separated by the primary and secondary cyclone units 430 and 300 are reserved in a separated part.

[0123] Here, since the primary cyclone unit 430 separates the relatively large-sized dusts while the secondary cyclone unit 300 separates the fine dusts, most of the dusts are stored in the first dust reserving unit 414. That is, the first dust reserving unit 414 is more quickly filled with the dusts. Therefore, the first dust reserving unit 414 must be more frequently emptied.

[0124] Therefore, the dust collection body 410 having the first dust reserving portion 414 is separated from the dust collection container 500 having the second dust reserving portion 510. As a result, only the dust collection body 410 can be separated from the main body 100 to discharge the dusts reserved in the first dust reserving portion 414.

[0125] In addition, since only the first dust reserving portion 414 is formed in the dust collection body 410, the structure of the dust collection body 410 is simplified and light-weighted. Therefore, the user can easily handle the dust collection body 410.

[0126] That is, the dust collection container 500 is provided to be detachably mounted on the main body 100 so that it can be emptied easily after being separated from the main body 100.

[0127] In addition, the dust collection container 500 is coupled to the main body 100 and then the dust collection unit 400 is coupled to the main body. Therefore, one surface of the dust collection container may be formed to correspond to the shape of the dust collection body 410.

[0128] 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 comprising
a cyclone unit separating dust from air,
a dust collecting unit including a dust storage unit
storing dust separated from the cyclone unit, and
a main body having the dust collecting unit,
characterized in that the vacuum cleaner comprises one or more cyclone units in the dust collecting unit and the rest of the cyclone unit in the main body.
2. The vacuum cleaner according to claim 1, **characterized in that** the cyclone unit is connected to the dust collecting unit by mounting the dust collecting unit on the main body.
3. The vacuum cleaner according to claim 1, **characterized in that** the vacuum cleaner further comprises a connection passage in the main body to connect the cyclone unit in the dust collecting unit and the cyclone unit in the main body.
4. The vacuum cleaner according to claim 1, **characterized in that** the cyclone unit in the main body is disposed on the top of the main body.
5. The vacuum cleaner according to claim 1, **characterized in that** the cyclone unit in the main body is disposed slant to the main body at a predetermined angle.
6. The vacuum cleaner according to claim 1, **characterized in that** the cyclone unit in the main body declines toward the dust collecting unit.
7. The vacuum cleaner according to claim 1, **characterized in that** the dust separated in the cyclone unit of the main body is stored in the dust collecting unit.
8. The vacuum cleaner according to claim 1, **characterized in that** the dust storage units are equal in number to the cyclone units and are formed in the dust collecting unit.
9. The vacuum cleaner according to claim 8, **characterized in that** the dust collecting unit further comprises a cover member screening each of the dust storage units simultaneously.
10. The vacuum cleaner according to claim 9, **characterized in that** the cover member comprises a dust passage flowing dust discharged from the cyclone unit of the main body into one of the dust storage units.
11. The vacuum cleaner according to claim 9, **characterized in that** the cyclone unit provided into the dust collecting unit is combined with the cover mem-

ber and separated with the dust collecting body.

12. The vacuum cleaner according to claim 1, **characterized in that** the vacuum cleaner comprising a guide cover forming a passage flowing air discharged from the cyclone unit of the main body into the main body and being mounted on the main body. 5
13. The vacuum cleaner according to claim 1, **characterized in that** the vacuum cleaner further comprises a dust collecting container storing dust separated from the cyclone unit of the main body. 10
14. The vacuum cleaner according to claim 13, **characterized in that** the dust collecting unit is mounted on the main body after the dust collecting container is mounted on the main body. 15
15. The vacuum cleaner according to claim 1, **characterized in that** air including dust suctioned from the outside passes through the cyclone unit in the dust collecting unit, and then passes through the cyclone unit in the main body. 20

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Fig.1

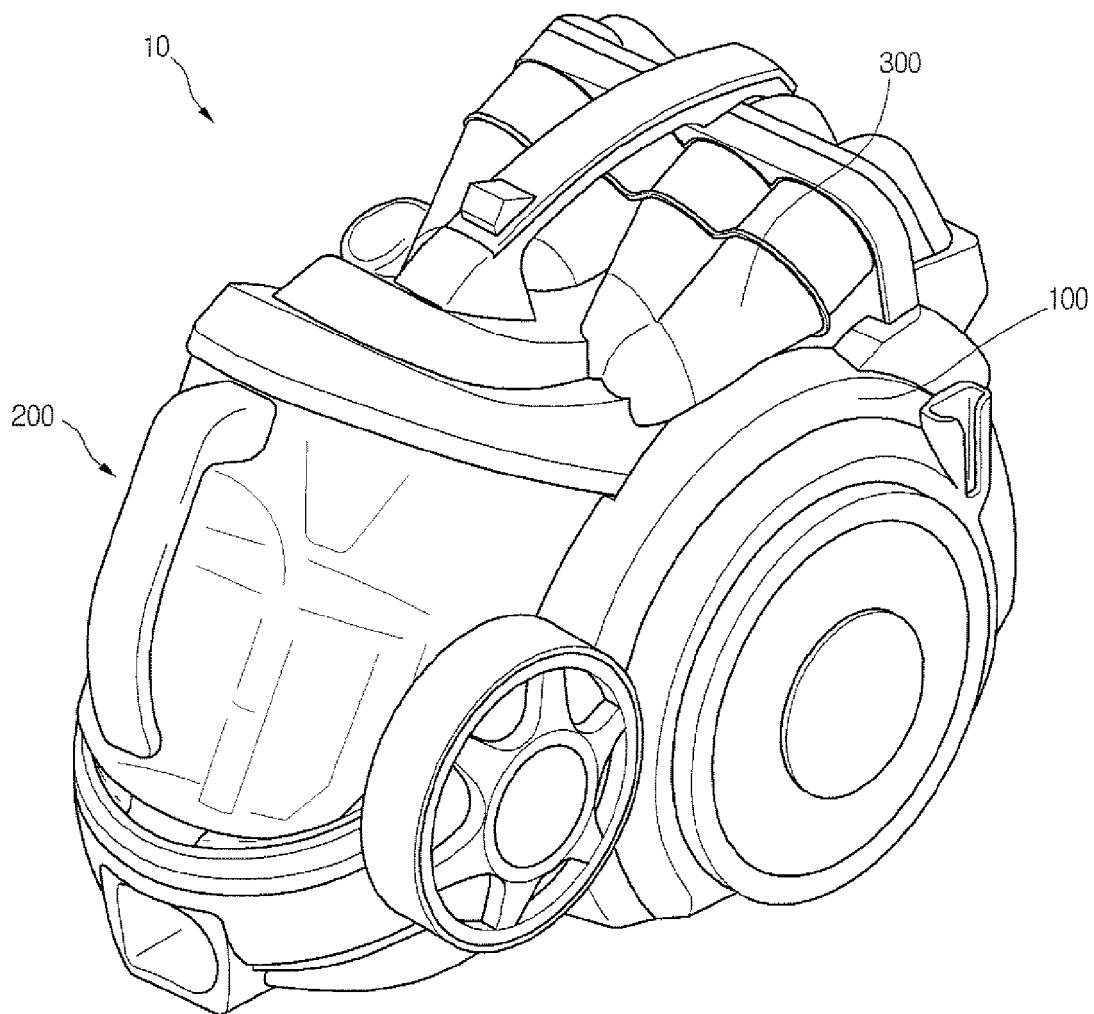


Fig. 2

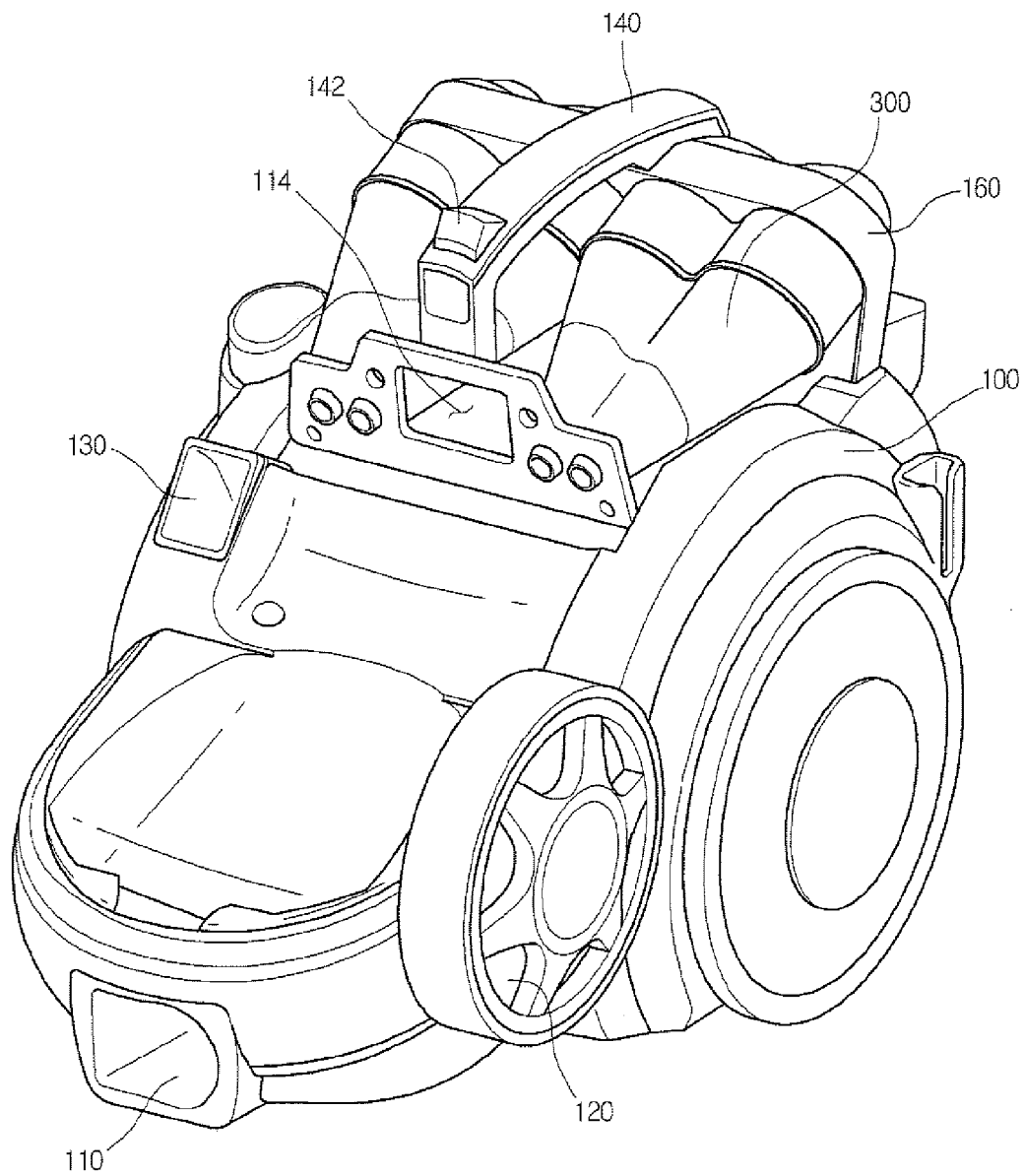


Fig.3

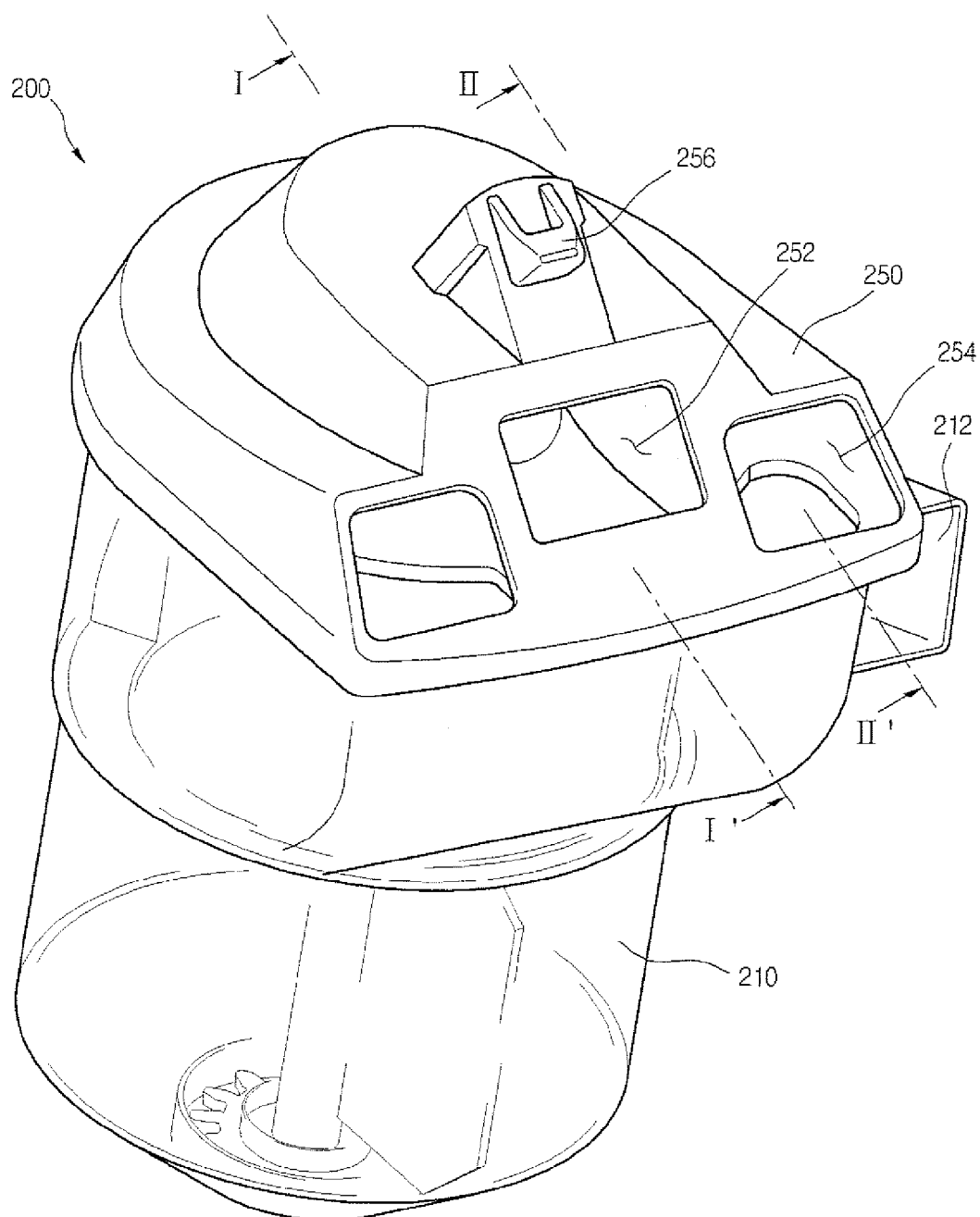


Fig. 4

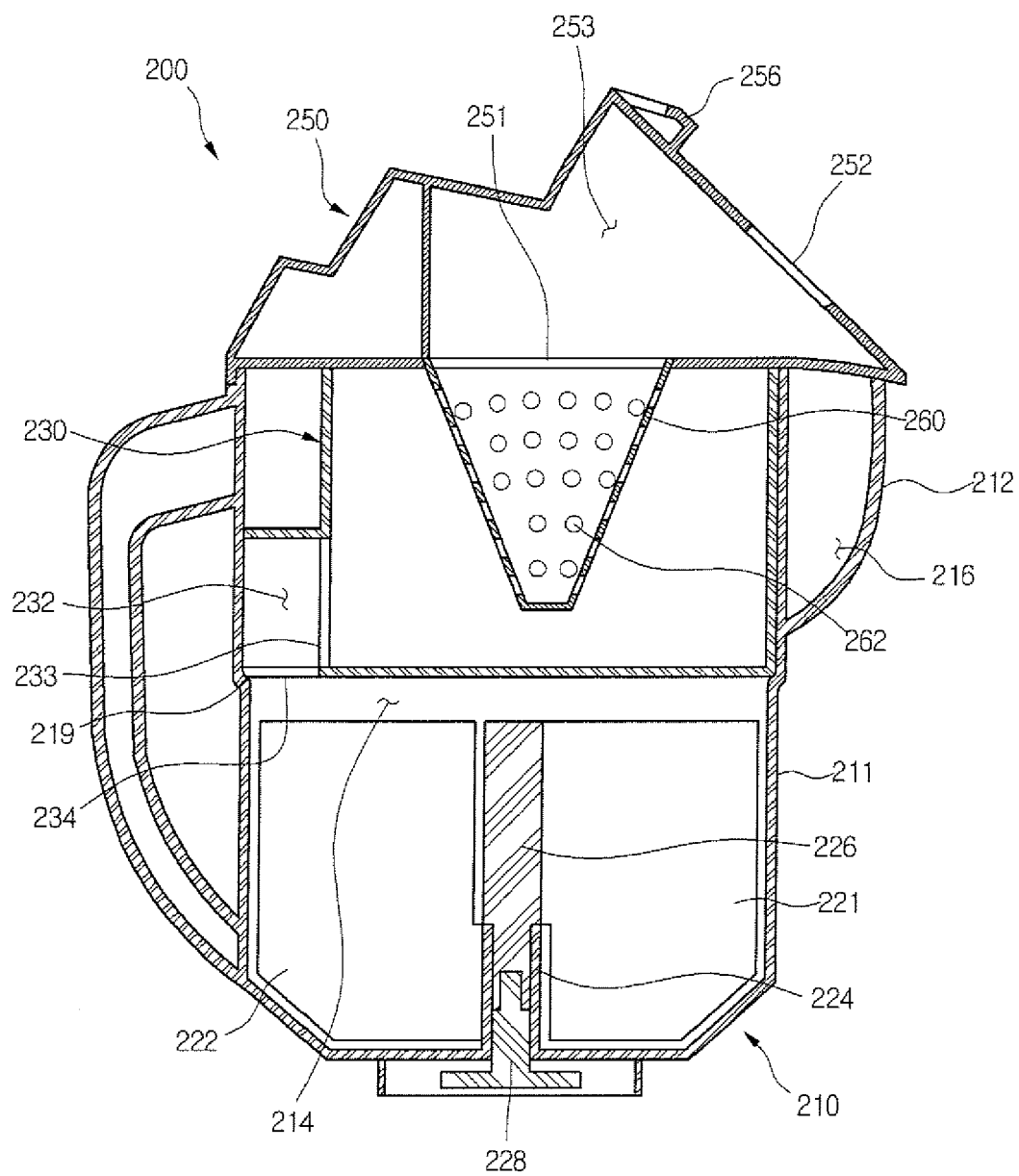


Fig.5

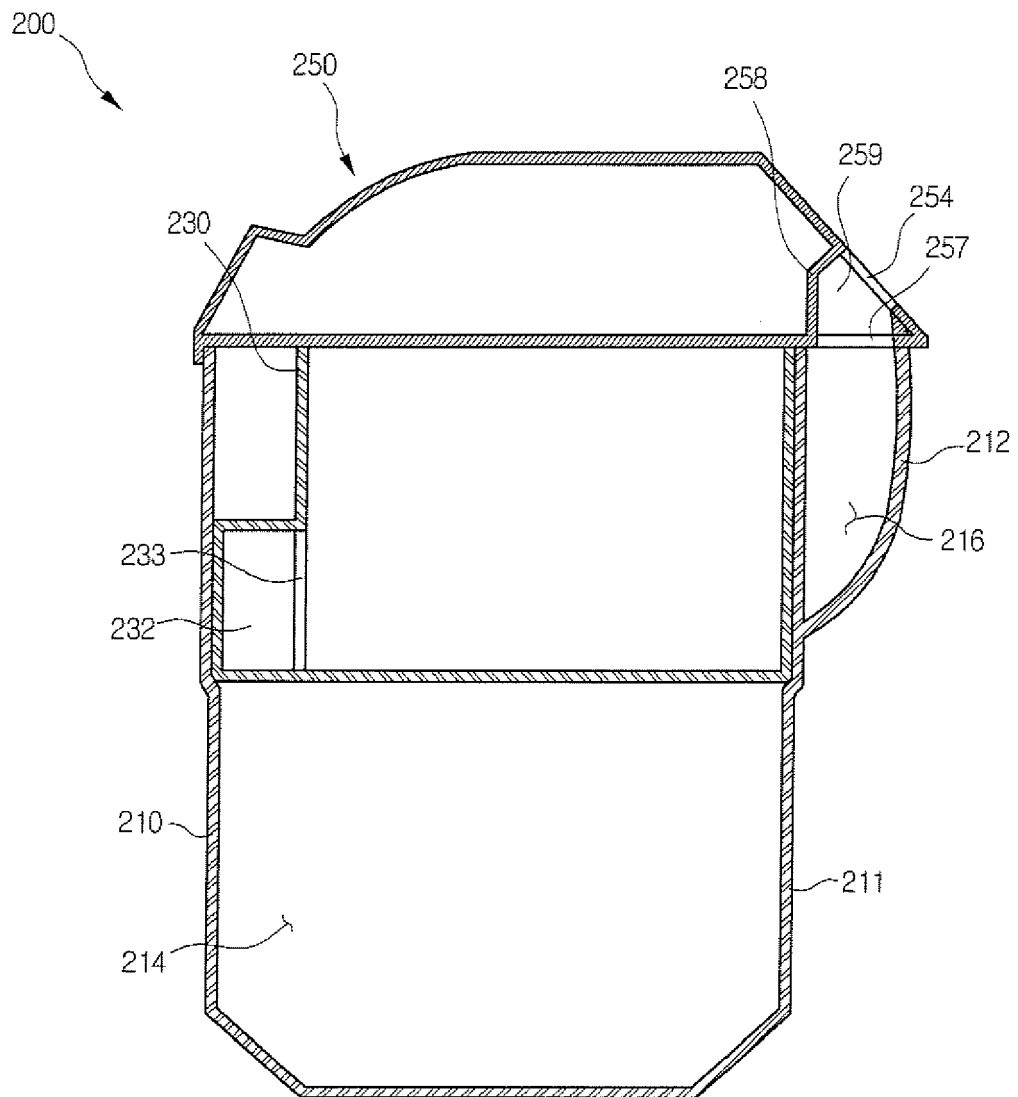


Fig. 6

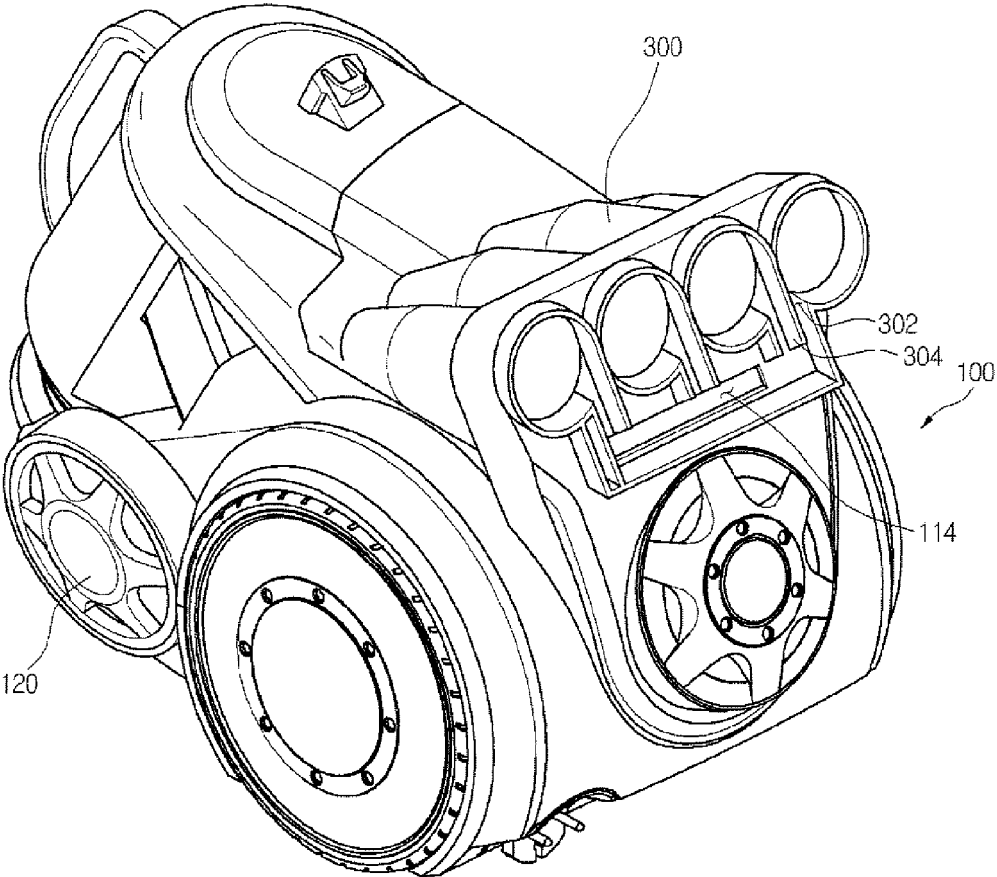


Fig. 7

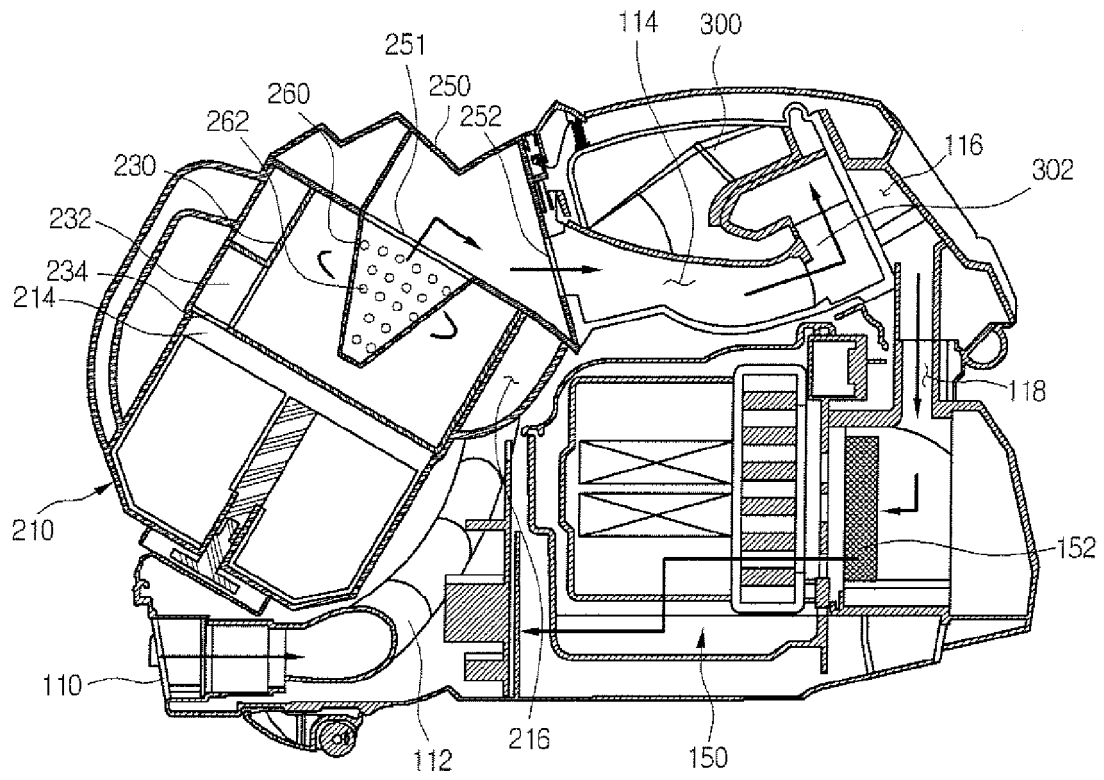


FIG. 8

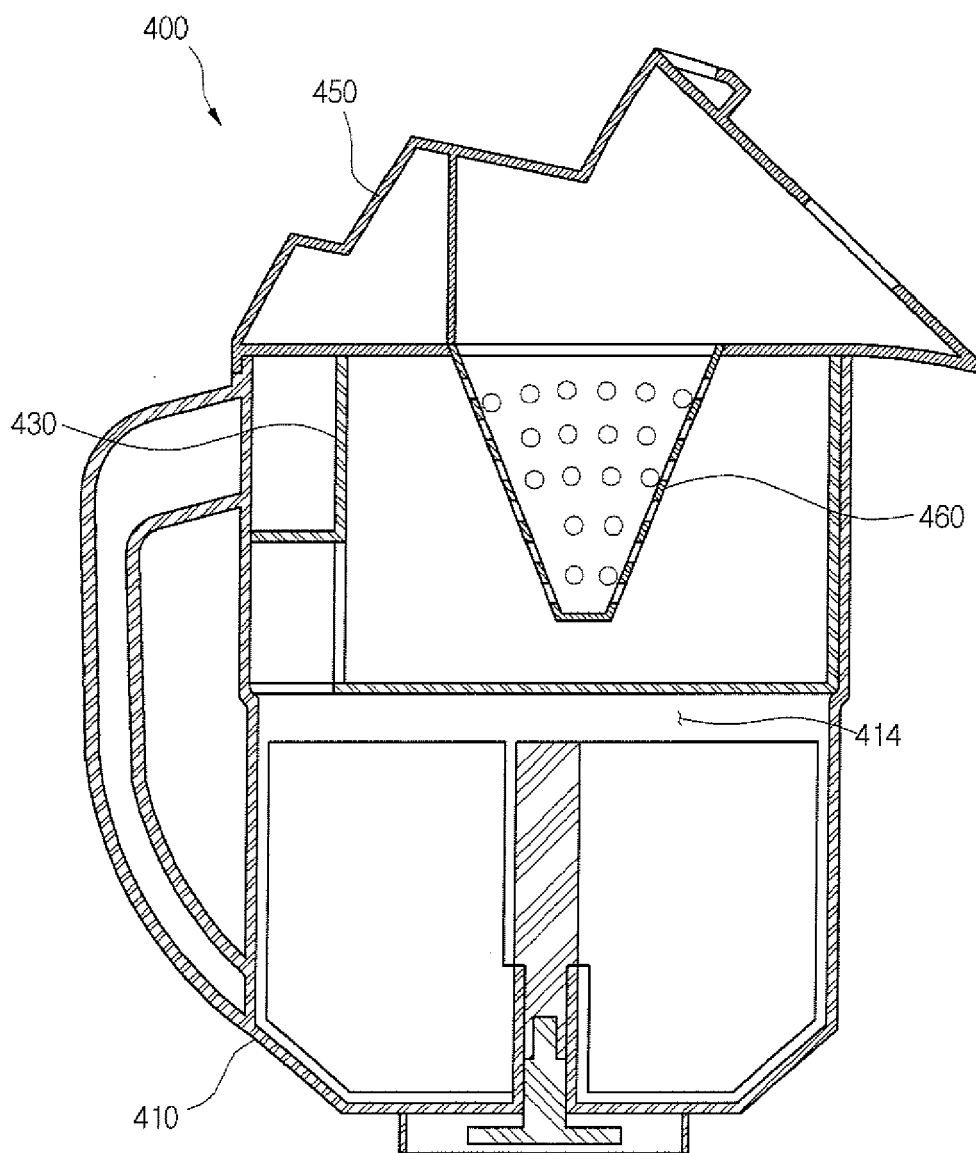


FIG. 9

