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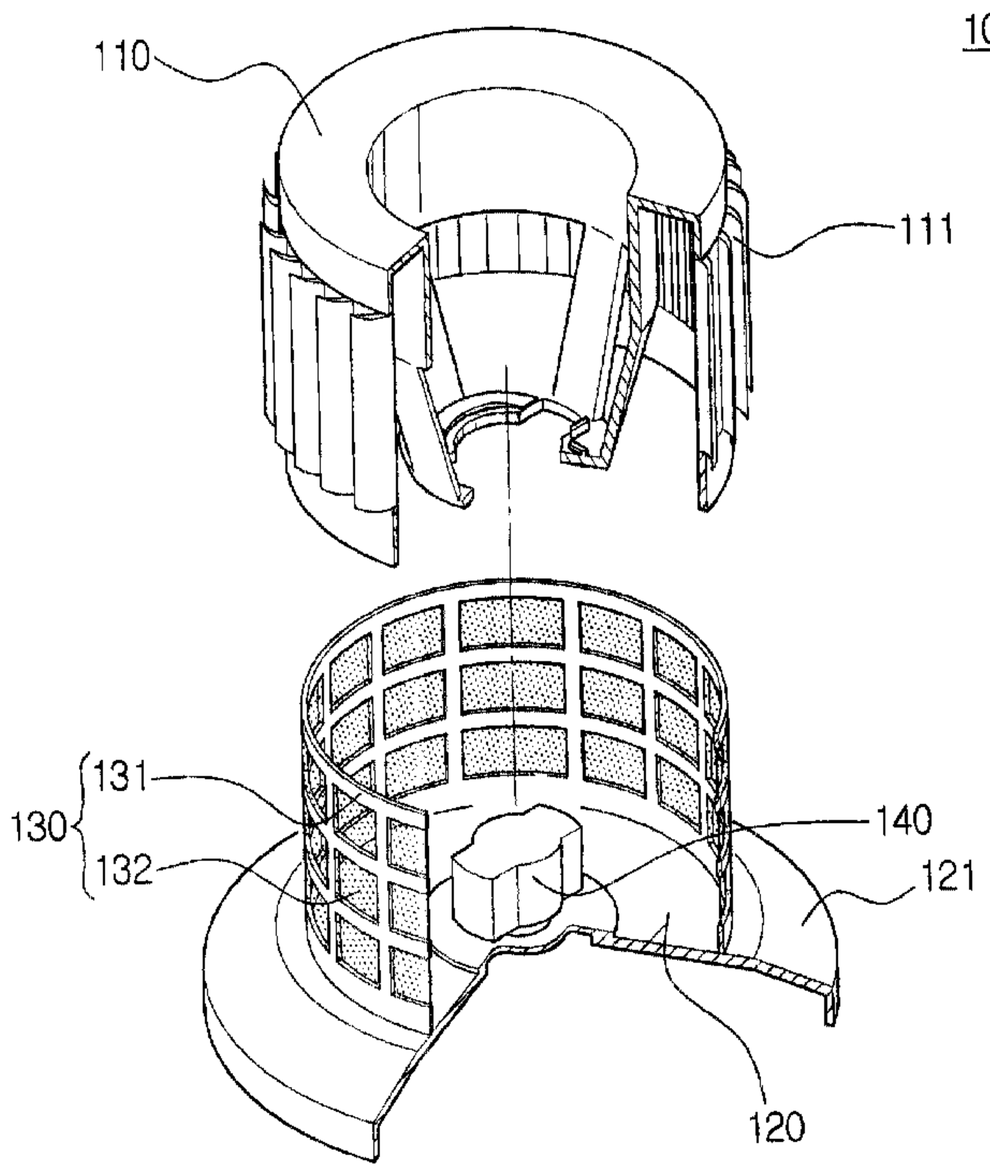
(54) Titre : GRILLE DE COLLECTEUR DE POUSSIERE A CYCLONE POUR ASPIRATEUR
(54) Title: GRILL ASSEMBLY OF A CYCLONE DUST COLLECTING APPARATUS FOR A VACUUM CLEANER




(57) Abrégé/Abstract:
A grill assembly of a cyclone dust collecting apparatus for a vacuum cleaner capable of improving dust collecting function of the vacuum cleaner by preventing dirt from flowing into a vacuum-generating device after passing through a grill. The grill assembly is disposed at an upper part of an air discharge passage of a cyclone body for separating dirt from a whirling air current by a centrifugal force by forming the whirling air current from a drawn air, and the grill assembly prevents dirt from being drawn to a vacuum-generating device of the vacuum cleaner. The grill assembly comprises a grill body having a plurality of passages formed thereon and filtering means disposed along an interior wall of the grill body for filtering dust drawn into the grill body through the plurality of passages.

ABSTRACT OF THE DISCLOSURE

A grill assembly of a cyclone dust collecting apparatus for a vacuum cleaner capable of improving dust collecting function of the vacuum cleaner by preventing dirt from flowing into a vacuum-generating device after passing through a grill. The grill assembly is disposed at an upper part of an air discharge passage of a cyclone body for separating dirt from a whirling air current by a centrifugal force by forming the whirling air current from a drawn air, and the grill assembly prevents dirt from being drawn to a vacuum-generating device of the vacuum cleaner. The grill assembly comprises a grill body having a plurality of passages formed thereon and filtering means disposed along an interior wall of the grill body for filtering dust drawn into the grill body through the plurality of passages.

# GRILL ASSEMBLY OF A CYCLONE DUST COLLECTING APPARATUS FOR A VACUUM CLEANER

## BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a cyclone dust collecting apparatus for a vacuum cleaner, and more particularly to a grill assembly of a cyclone dust collecting apparatus for a vacuum cleaner used for preventing dust from flowing into a vacuum-generating device.

2. Description of the Related Art

FIG. 1 shows a conventional cyclone dust collecting apparatus for a vacuum cleaner. According to FIG. 1, the conventional cyclone dust collecting apparatus 10 for the vacuum cleaner comprises a cyclone body 20 and a dirt-collecting portion 30.

At an upper part of the cyclone body 20 is provided an air suction passage 21 connected with a brush assembly (not shown) of the vacuum cleaner. An air drawn through the air suction passage 21 flows in a tangential direction of the cyclone body 20 and forms a whirling air current.

At an upper central part of the cyclone body 20 is provided an air discharge passage 22 connected with a vacuum-generating device (not shown) of the vacuum cleaner. In order to prevent dirt from flowing into the vacuum-generating device,

a grill 23 is provided at an inlet of the air discharge passage 22.

The grill 23 has a plurality of passages 24 formed thereon. When the vacuum-generating device of the vacuum cleaner operates, the air containing all kinds of dirt existing on a cleaning surface is drawn into the cyclone body 20 through the brush assembly and the air suction passage 21.

The air drawn into the cyclone body 20 forms the whirling air current, and the dirt included in the air is separated by a centrifugal force and collected in the dirt-collecting portion 30. Then, the air flows into the vacuum-generating device through the passages 24 of the grill 23 and the air discharge passage 22.

Meanwhile, some dirt that is not separated from the air passes through the grill 23 via the passages 24 of the grill 23, and flows into the vacuum-generating device through the air discharge passage 22, thereby deteriorating dust-collecting function of the vacuum cleaner.

## SUMMARY OF THE INVENTION

An object of the present invention is to provide a grill assembly of a cyclone dust collecting apparatus for a vacuum cleaner capable of improving dust collecting function of the vacuum cleaner by preventing dirt from flowing into a vacuum-generating device after passing through a grill.

Another object of the present invention is to provide a grill assembly of a cyclone dust collecting apparatus for a vacuum cleaner allowing a grill to be cleaned in an easy manner by easily mounting and removing the grill.

The above object is accomplished by providing a grill assembly of a cyclone dust collecting apparatus for a vacuum cleaner disposed at an upper part of an air discharge passage of a cyclone body for separating dirt from a whirling air current by a centrifugal force by forming the whirling air current from a drawn air, for preventing dirt from flowing into a vacuum-generating device of the vacuum cleaner. The grill assembly comprises a grill body having a plurality of passages formed thereon and having a cylindrical shape having openings at both ends thereof, a sealing member for sealing one opening of the grill body, and mounting means comprising a locking knob integrally formed with an upper part of the sealing member and a penetrating hole disposed at a corresponding portion of the grill body, for allowing the locking knob to pass therethrough in a predetermined position, the mounting means for easily mounting and removing the sealing member in and from the grill body.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross section view showing a conventional dust collecting apparatus for a vacuum cleaner;

FIG. 2 is an exploded perspective view showing a grill

assembly of a dust collecting apparatus for a vacuum cleaner according to the present invention;

FIG. 3 is a perspective view showing a locking knob connection portion of the grill assembly of FIG. 2; and

FIG. 4 is a cross section view showing the grill assembly of FIG. 2 being mounted in a cyclone dust collecting apparatus.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

From now on, a preferred embodiment of the present invention will be described in great detail by referring to the appended drawings.

FIG. 2 shows a grill assembly of a cyclone dust collecting apparatus for a vacuum cleaner according to the present invention. A grill assembly 100 of the cyclone dust collecting apparatus for the vacuum cleaner comprises a grill body 110, a sealing member 120, and filtering means 130.

The grill body 110 has a plurality of passages 111 formed thereon. The grill body 110 has a cylindrical shape having openings at both ends thereof. An upper opening is connected with an air discharge passage 22 and a lower opening is sealed by the sealing member 120.

At an outer circumference of the sealing member 120 is provided a dirt backflow preventing unit 121. The dirt backflow preventing unit 121 shifts a direction of dirt included in an air current towards the grill body 110 towards

a whirling air current of a cyclone dust collecting apparatus 10.

The filtering means 130 includes a filter support portion 131 and a filter 132 supported by the filter support portion 131. The filter support portion 131 is integrally formed with the sealing member 120, and the filter 132 is attached to the filter support portion 131.

Meanwhile, the sealing member 120 has a locking knob 140 disposed at an upper part thereof and integrally formed with the sealing member 120. As shown in FIG. 3, the locking knob 140 has a cylindrical shape from an upper surface of the sealing member 120 to a predetermined height, and an upper portion of the cylindrical shape has a handle shape.

At a lower part of the grill body 110 is provided a locking knob connection portion 150 to correspond to the locking knob 140 of the sealing member 120. As shown in FIG. 3, the locking knob connection portion 150 has a penetrating hole 151 formed therein for receiving the locking knob 140 and a cam portion 152 disposed around the penetrating hole 151.

The cam portion 152 is formed such that a locking position is 0.5mm higher than an unlocking position. Therefore, the sealing member 120 is firmly mounted in the grill body 110 due to an interrelated movement of the locking knob 140 on the cam portion 152.

In other words, if the locking knob 140 of the sealing

member 120 is turned 90° after passing through the penetrating hole 151 of the grill body 110, the sealing member 120 is firmly mounted in the grill body 110. Thus, the sealing member 120 can be mounted and removed in and from the grill body 110 without using any special tools. In addition, since the locking knob 140 and the locking knob connection portion 150 are disposed in the filtering means 130, there is no occasion that the dirt flows into the connection portion thereof causing a problems in mounting and removing the sealing member 120.

Also, maintenance and repair of the grill assembly 100 or cleaning of the filter 132 becomes convenient. The undesignated numerals 153 and 154 of FIG. 3 are stoppers protruding from the grill body 120 in order to control the locking position and the unlocking position of the locking knob 120.

FIG. 4 is a view showing the grill assembly 100 with the above construction being mounted in the cyclone body 20. The grill assembly 100 is removably mounted in the cyclone body 20 by a connection member such as a screw (not shown).

In the meantime, when the vacuum-generating device of the vacuum cleaner operates, the whirling air current is formed inside the cyclone body 20. Various dirt included in the whirling air current is separated from the air current by the centrifugal force, and the separated dirt is collected in a

dirt-collecting portion 30.

Some dirt, which is not separated from the air current by the centrifugal force in the above dirt collecting step, whirls along a center of the cyclone body 20 and moves to the grill assembly 100 due to an uprising air current.

At this time, some dirt included in the air current is reflected after being collided against the dirt backflow preventing unit 121 of the sealing member 120, and shifted towards the whirling air current. Thus, the dirt is whirled again into the whirling air current.

Remained dirt that is not separated from the uprising air current by the dirt backflow preventing unit 121 flows into the passages 111 of the grill assembly 100. The air flows into the grill assembly 100 through the passages 111 due to a pressure difference in and out of the grill assembly 100.

The dirt included in the air current is filtered by the filter 132, and thus only the cleaned air flows to the vacuum-generating device. Therefore, the deterioration of dirt collecting function of the vacuum cleaner can be prevented since the dirt is drawn to the vacuum-generating device.

Also, in order to clean the grill assembly 100 and replace the filter 132 with a new one, the sealing member 120 is removed from the grill body 110 in a manner that the sealing member 120 is turned 90º in a predetermine direction and then is drawn out. After the cleaning and replacement,

the sealing member 120 is securely mounted in the grill body 110 in a manner that the locking knob 140 of the sealing member 120 is passed through the penetrating hole 151 of the grill body 110 and then is turned 90° in the opposite direction.

According to the grill assembly 100 of the cyclone dust collecting apparatus for the vacuum cleaner of the present invention, the dirt cannot be drawn into the vacuum-generating device of the vacuum cleaner through the air discharge passage 22 of the cyclone body 20 along the air current, thus dust collecting function of the vacuum cleaner is improved.

In addition, according to the grill assembly 100 of the cyclone dust collecting apparatus for the vacuum cleaner, it is easy to clean the grill due to an easiness of mounting and removing the sealing member 120

So far, the preferred embodiment of the present invention has been illustrated and described. However, the present invention is not limited to the preferred embodiment described here, and someone skilled in the art can modify the present invention without distorting the point of the present invention claimed in the claim part.

WHAT IS CLAIMED IS:

1.A grill assembly of a cyclone dust collecting apparatus for a vacuum cleaner disposed at an upper part of an air discharge passage of a cyclone body for separating dirt from a whirling air current by a centrifugal force by forming the whirling air current from a drawn air, the grill assembly for preventing dirt from flowing into a vacuum-generating device of the vacuum cleaner, the grill assembly, comprising:

a grill body having a plurality of passages formed thereon and having a cylindrical shape having openings at both ends thereof;

a sealing member for sealing one opening of the grill body; and

mounting means comprising a locking knob integrally formed with an upper part of the sealing member and a penetrating hole disposed at a corresponding portion of the grill body, for allowing the locking knob to pass therethrough in a predetermined position, the mounting means for easily mounting the sealing member in the grill body.

2.The grill assembly of claim 2, wherein around the penetrating hole of the grill body is provided a cam portion, and the sealing member is firmly mounted in the grill body due to an interrelated movement of the locking knob on the cam portion.

3. The grill assembly of claim 2, wherein the cam portion is formed such that a locking position is 0.5mm higher than an unlocking position.

4. The grill assembly of claim 1, further comprising filtering means disposed along an interior wall of the grill body, for filtering dirt drawn into the grill body through the passages.

5. The grill assembly of claim 4, wherein the filtering means comprises:

a filter support portion integrally formed with the sealing member; and

a filter attached to the filter support portion.

FIG.1

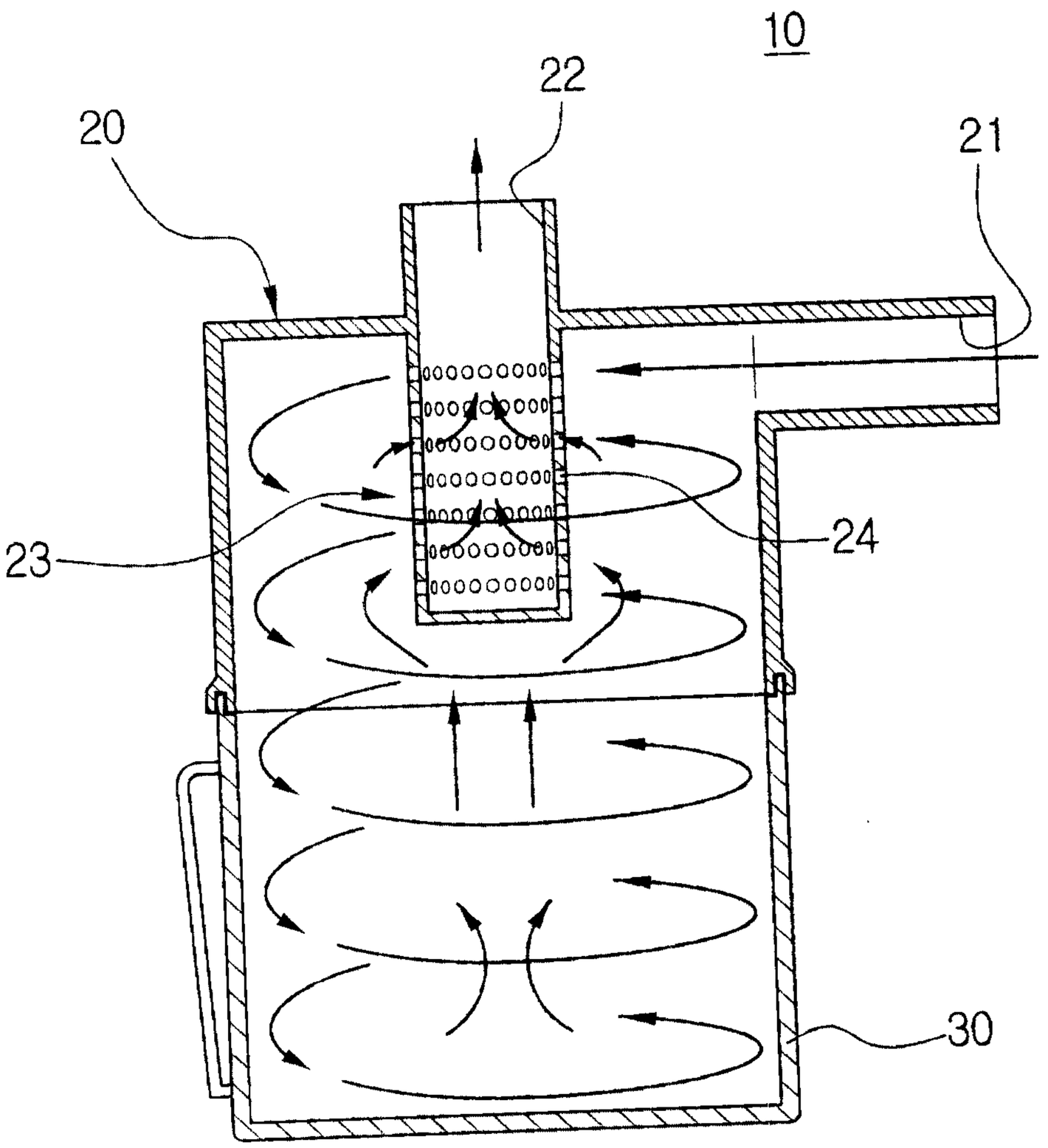


FIG.2

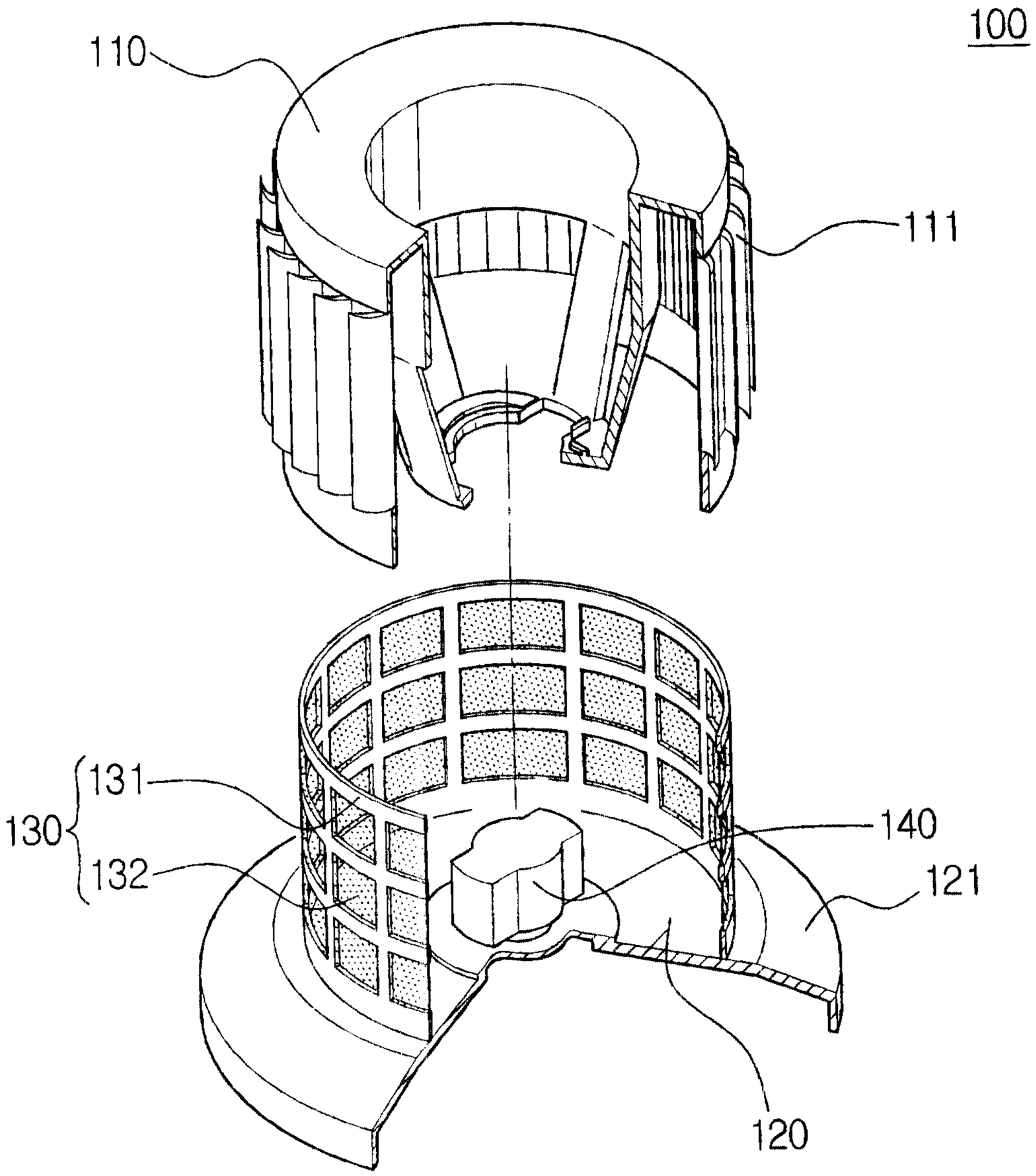


FIG.3

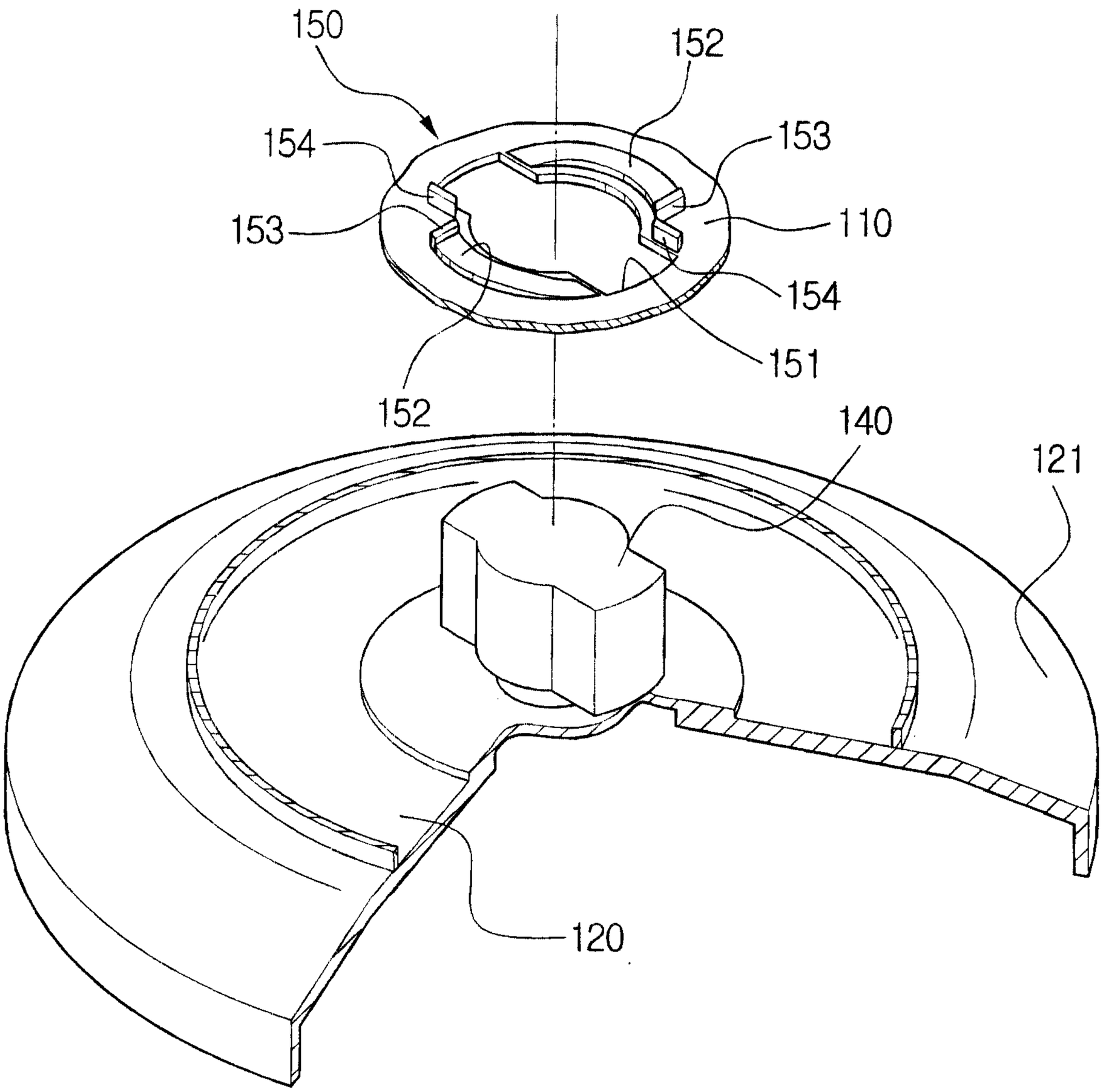
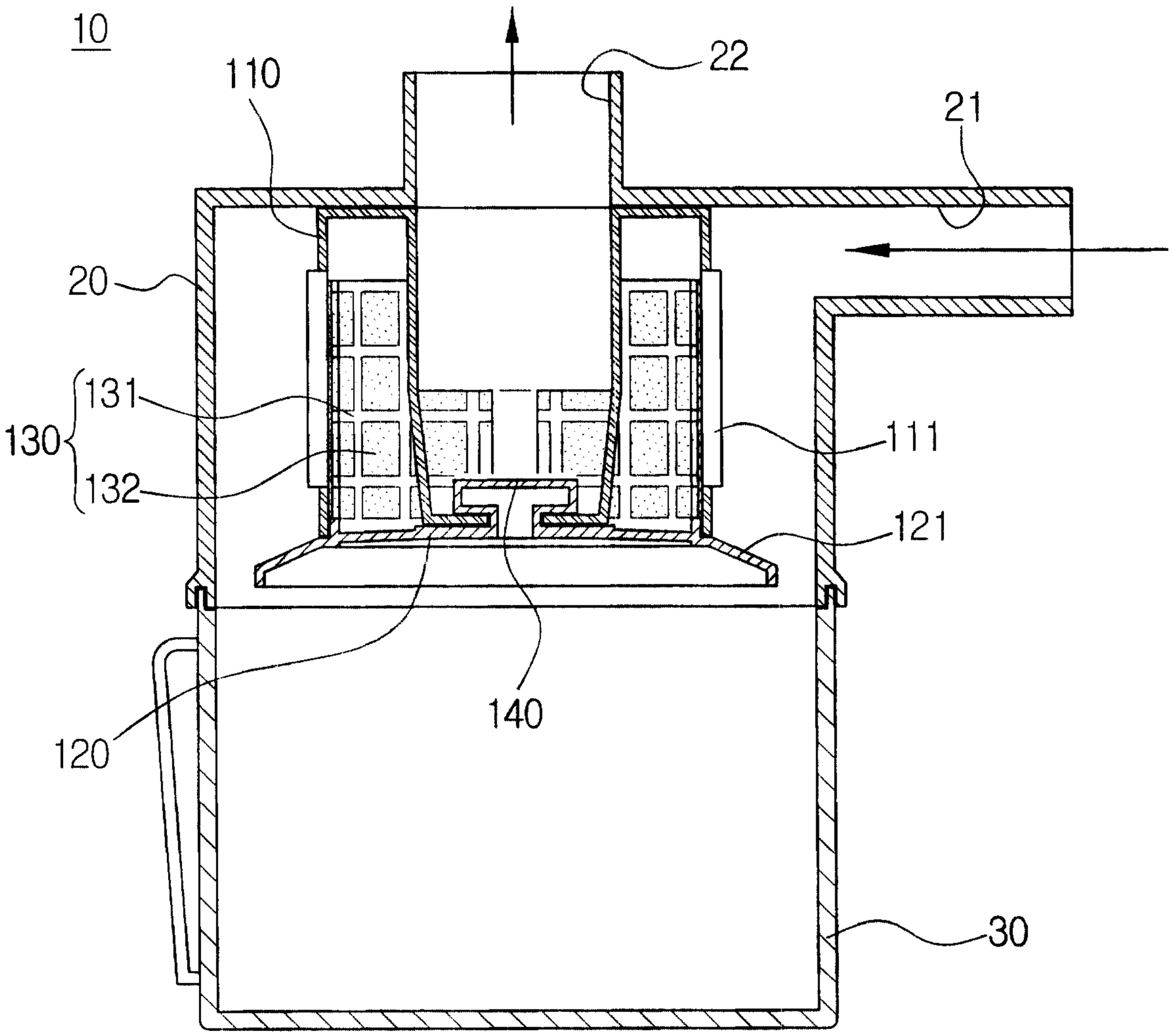
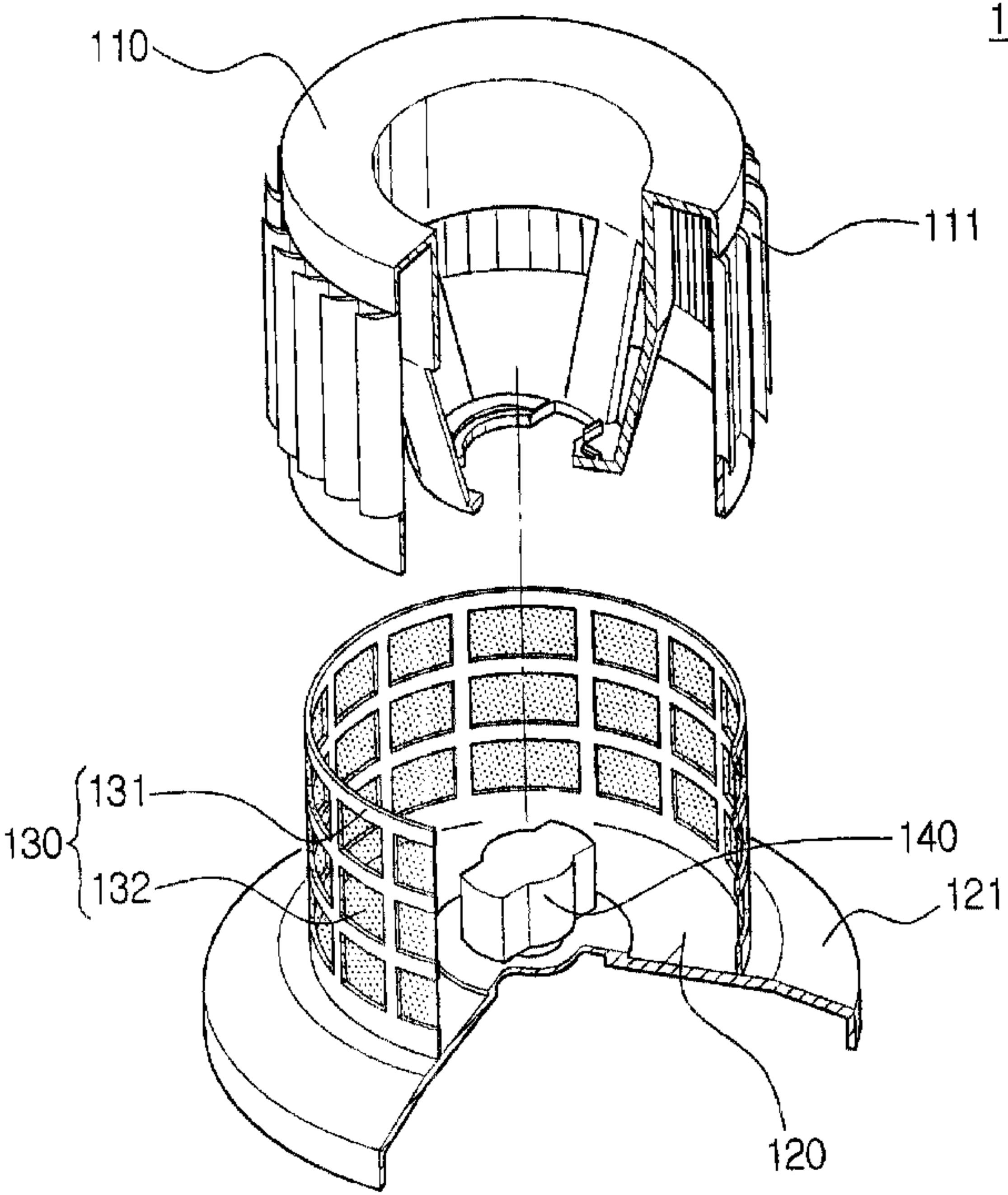


FIG.4




100
110
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132
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