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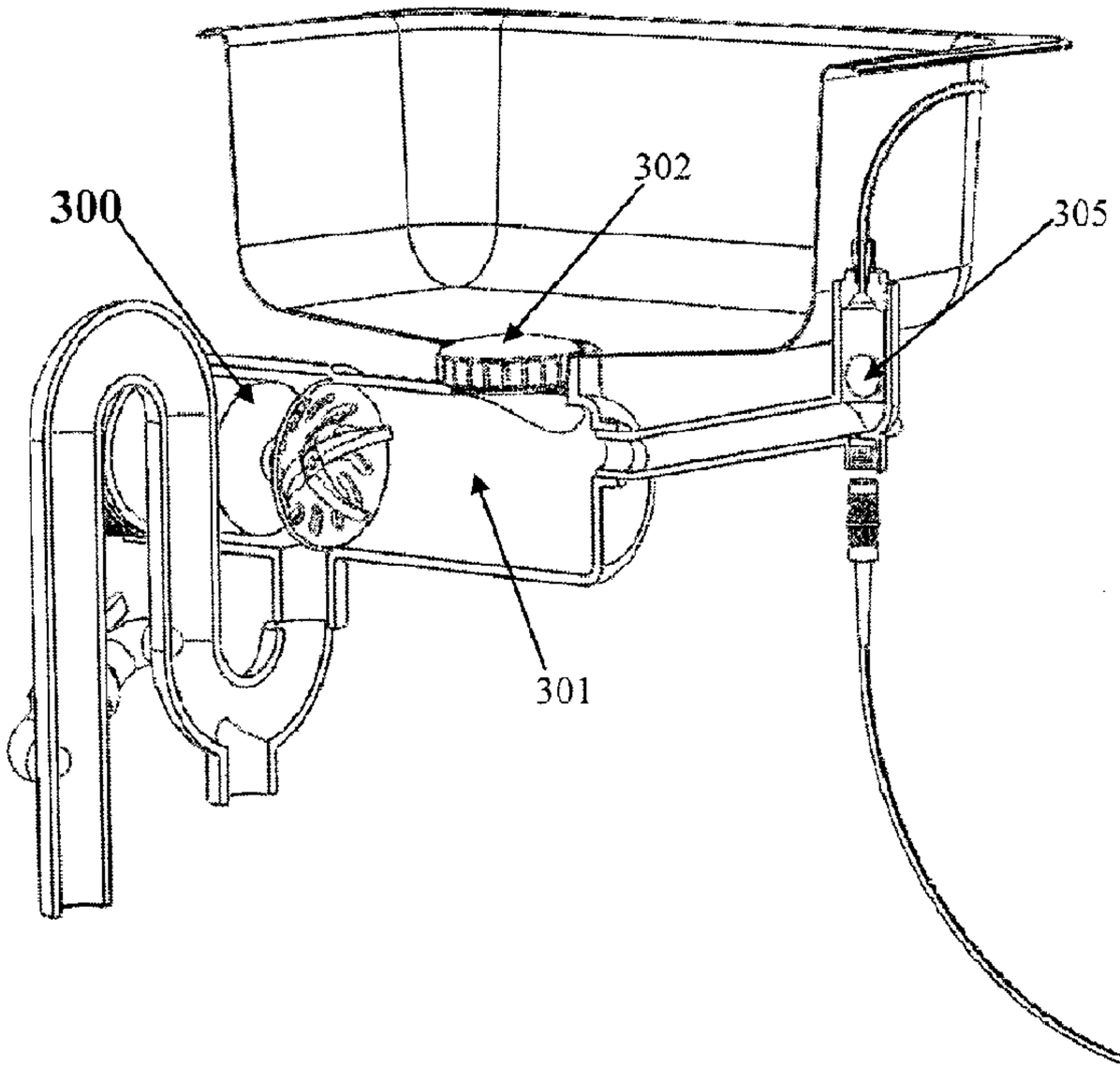
(54) Title: ODOURLESS WASTE DISPOSER UNIT



(57) Abrégé/Abstract:
The invention, the title of which is ODOURLESS WASTE DISPOSER UNIT, is in the technical field of waste disposer units, and more generally in the field of mechanisms for reducing food waste. The following difficulties have been identified with regards to the

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(57) Abrégé(suite)/Abstract(continued):
prior art: disagreeable odours; difficulty in reducing or grinding waste such as fibrous, stringy, elastic matter, or hard bones. The new idea is a waste disposer unit that addresses the problem of odour by flooding the chopping chamber with water using a swivel plug that leaves a gap of fresh water from the last use of the tap. A grinding chamber where the matter is segmented and torn up several times while it swirls in the water brings a solution to the problem of the matter that is difficult to reduce. The invention can be adapted to different uses: residential, commercial or industrial.

Abstract

Thc invention, the title of which is *ODOURLESS WASTE DISPOSER UNIT*, is in the technical field of waste disposer units, and more generally in the field of mechanisms for reducing food waste. The following difficulties have been identified with regards to the prior art: disagreeable odours; difficulty in reducing or grinding waste such as fibrous, stringy, elastic matter, or hard bones. The new idea is a waste disposer unit that addresses the problem of odour by flooding the chopping chamber with water using a swivel plug that leaves a gap of fresh water from the last use of the tap. A grinding chamber where the matter is segmented and torn up several times while it swirls in the water brings a solution to the problem of the matter that is difficult to reduce. The invention can be adapted to different uses: residential, commercial or industrial.

Description

The title of the invention is

Odourless waste disposer unit

This is a divisional application of the Canadian application 2,875,345 previously filed on 16 December 2014, entitled *Floating methanization system*. The odourless waste disposer unit complements the floating methanization system described in the Canadian patent application 2,875,345 because the ideal way to bring the putrescible material to the anareobic processors is by way of the sewage systems.

The invention is in the field of waste disposer units, and more generally in the field of mechanisms for reducing food waste.

Usually, when a waste disposer unit is installed, food waste is fed with water into this waste disposer unit stored under a kitchen sink. The food waste is grinded within the disposer in order to reduce it so that it can be flushed to the plumbing system of a house or commercial establishment. One of the problems identified is the fact that some bad odours may emanate from the unit. Another problem in the prior art is the fact that fibrous, stringy, or elastic food waste is difficult to reduce. Also, hard bones like those of beef or pork meat can not be grinded by the existing mechanisms.

The new idea is a waste disposer unit that addresses the problem of odour emanating from the sink by flooding the chopping chamber with water using a swivel plug that leaves a gap of fresh water from the last use of the tap. Also, the proposed unit has a grinding chamber that will segment the matter by tearing it up several times while it swirls in the water, therefore bringing a solution to the problem of the matter that is difficult to reduce.

Following is a general description of the figures that illustrate the realization of the invention:
Figure 1 is a perspective cut view of the waste disposer unit showing the chopping chamber

and the swivel plug. Figure 2 is another perspective cut view of the waste disposer unit showing the chopping chamber and the swivel plug. Figure 3 is an exploded view of the waste disposer unit showing the bypass valve. Figure 4 is another perspective cut view of the waste disposer unit showing thc scaling cover plug. Figure 5 is an enlarged perspective cut view of the waste disposer unit shown in figures 1 and 4. Figure 6 is a close-up sectional view of the waste disposer unit showing the conical grid. Figure 7 is an enlarged exploded view of the motor, the grid, and the back blade of the waste disposer unit. Figures 8, 9, 10A, and 10B show different embodiments of the waste disposer unit for industrial uses, figure 10B showing a detailed close-up view of part of figure 10A.

Referring to the drawings in greater detail and by reference characters thereto, there is illustrated an odourless waste disposer unit 300.

In order to prevent the proliferation and emanation of disagreeable odours and to achieve the odourless grinding of waste material, the principle consists of the retention of water flooding the chopping chamber 301, establishing a ring of clean water from the ultimate flow of the tap around a swivel plug 302. The swivel plug 302 allows the creation of a partition with clear water from the tap serving to isolate the dirty water remaining in the grinder. These elements are illustrated in figures 1 and 2.

As seen in figure 2, the plug 302 can be tilted and removed to facilitate the passing through of large pieces of food waste. A sealing cover plug 304, best seen in figures 4 and 5, can be added over when one wishes to fill the sink.

The siphon that maintains the water level is equipped with a bypass valve 303 (seen in figure 3) that allows complete drainage when maintenance is required.

A float 305, shown in figures 1, 2, 4, and 5, can be used to activate the mechanism when water accumulates in the sink. Because the chopping elements in the grinding chamber 301 make a fence holding the not yet chopped matter against it, the water flowing from the tap may then

rise in level and lift the float 305 that will engage the grinding motion to reduce that matter. When the matter has been evacuated from the grinding chamber 301, the water will be free to rest to its proper level, relieving the contact from the float and stopping the motion. In this way, we have an automation potential.

The waste disposer unit 300 segments the objects by slicing them, or by tearing them up several times while they swirl in the water inside the chopping chamber 301. This process of cutting and tearing continues until the material is reduced to fragments small enough to go through the openings in a conical grid 306, best seen in figures 5, 6, and 7.

Behind the conical grid 306, there may be one or several back blades 307, seen in figure 7. The cutting edges of these blades segment the particles coming through the openings of the grid 306. The tail edges of the blades 307 rise apart as a propeller pitch to create a vortex to pump the material.

The waste disposer unit can be fabricated in different sizes and adapted to commercial and industrial uses. A few possible embodiments are illustrated in figures 8, 9, 10A, and 10B.

As can be seen in figure 9, the waste disposer unit can be installed inside a recipient big enough to contain large solid matter to be grinded. Since these large objects swirl in the recipient by the impact, the turbulence and the vortex coming from the rotation of the blades 307, they can be torn up and shredded into particles.

Figures 10A and 10B show another possible embodiment for industrial use. In this case, the invention can be used to extract decanted layers of sediments.

It will be understood that the above described embodiments are for purposes of illustration only, and that changes or modifications may be made thereto without departing from the spirit and scope of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A waste disposer unit (300) for the grinding and reduction of organic waste by which kitchen or other organic waste can be disposed of in a manner that eliminates unwanted odours by flooding the grinding chamber (301) with water, and allowing the retention of water in the said grinding chamber (301).

2. The waste disposer unit (300) of claim 1 further comprises a tilting and removable plug (302), letting the objects to be grinded pass through, and when closed, serving as a barrier to odours by retaining all around it a thin ring of clean water coming from the tap.

3. The waste disposer unit (300) of claim 1 or 2 further comprises a conical grid (306), serving as a barrier to large segments of waste, allowing these segments to swirl in the water while they are being sliced, lacerated, and torn up several times until they are reduced to fragments small enough to go through the openings in the said conical grid (306).

4. The waste disposer unit (300) of any of claims 1 to 3 wherein the conical grid (306) comprises several blades (307) in the back of it that turn their cutting edges to continue segmenting the particles coming through the openings of the grid (306).

5. The waste disposer unit (300) of any of claims 1 to 4 wherein the tail edges of the blades (307) behind the conical grid (306) rise apart as a propeller pitch to create a vortex to pump the material.

6. The waste disposer unit (300) of any of claims 1 to 5 can be fabricated in different sizes, and adapted to different uses: residential, commercial or industrial.

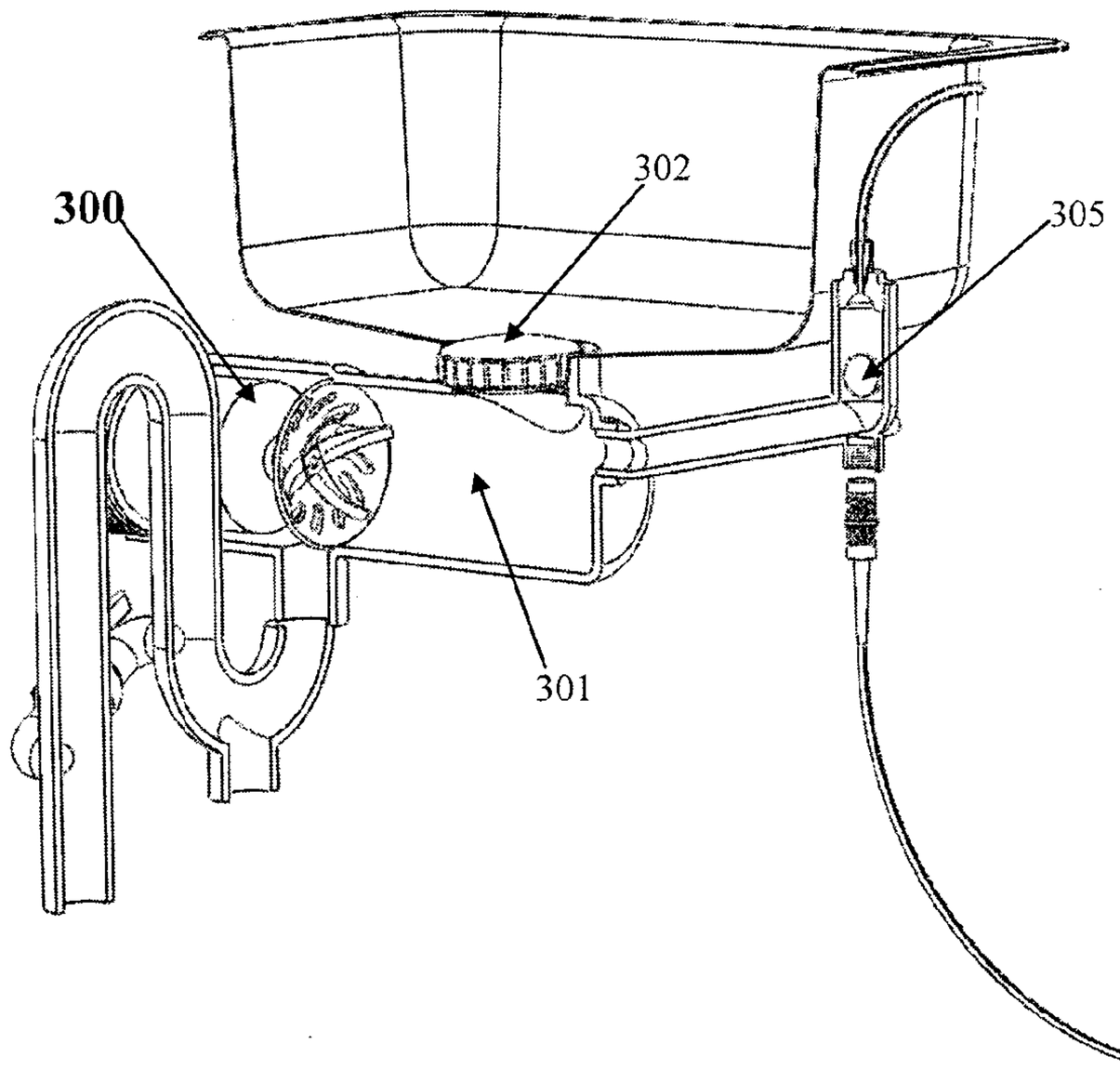

FIG. 1

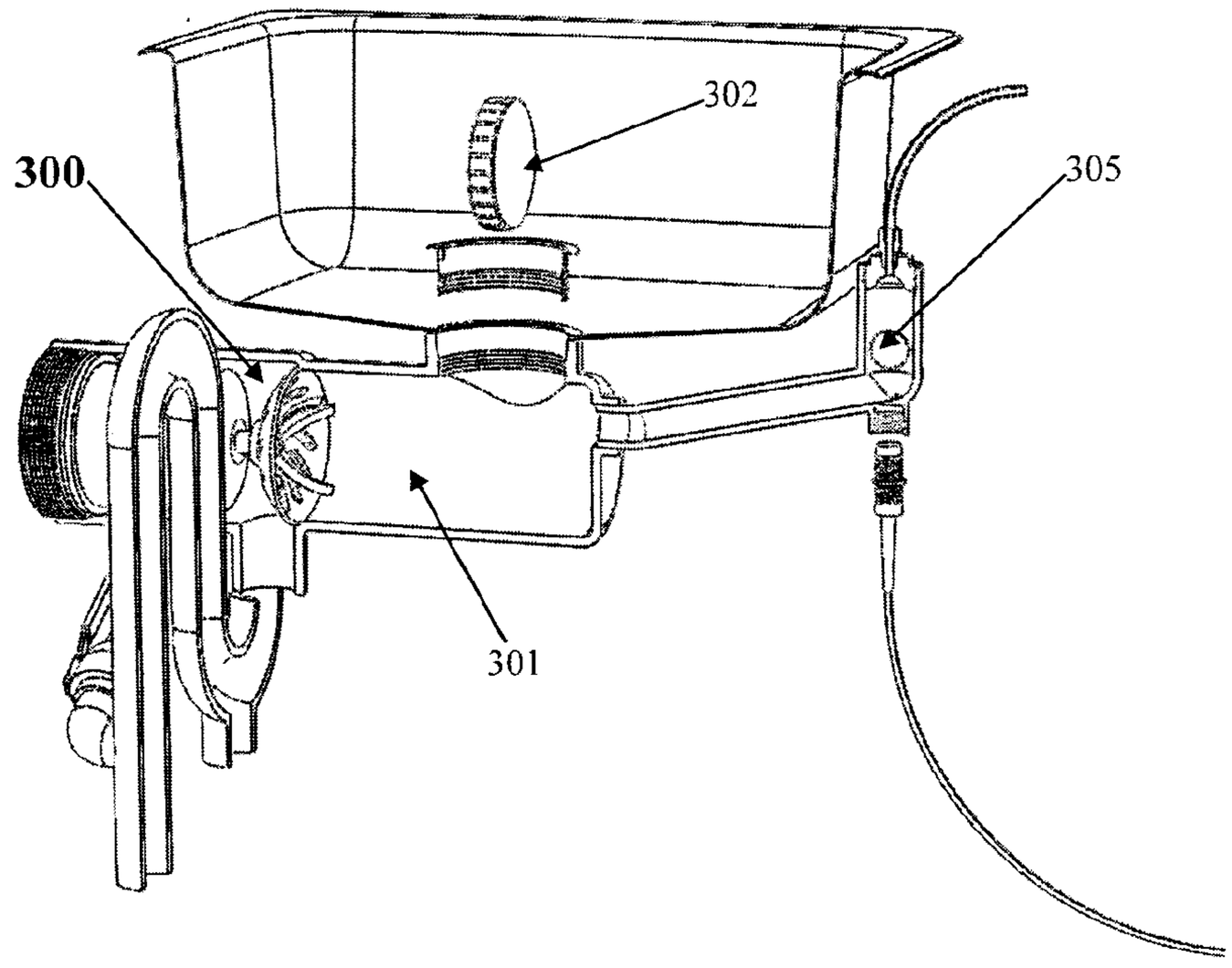

FIG. 2

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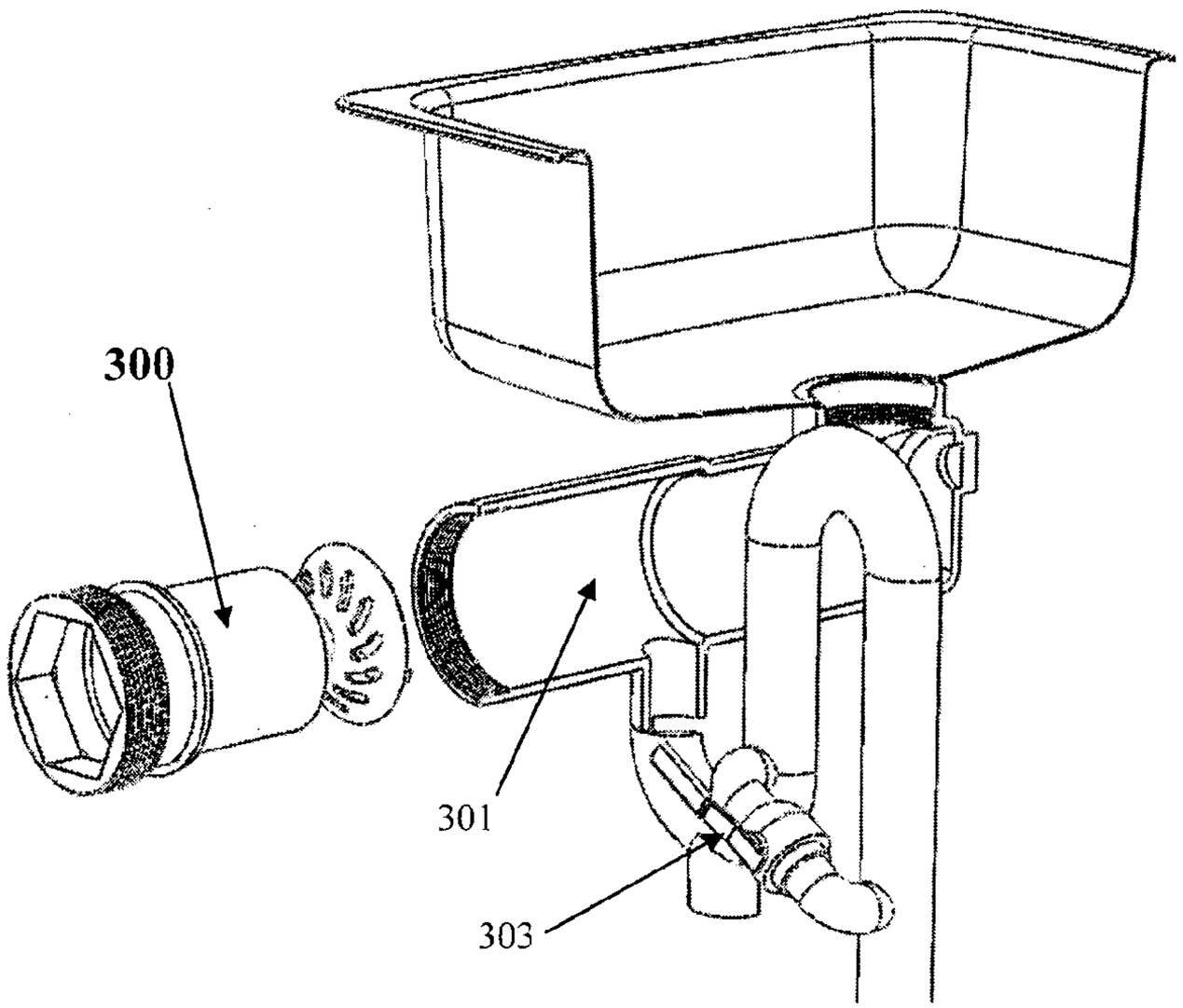

FIG. 3

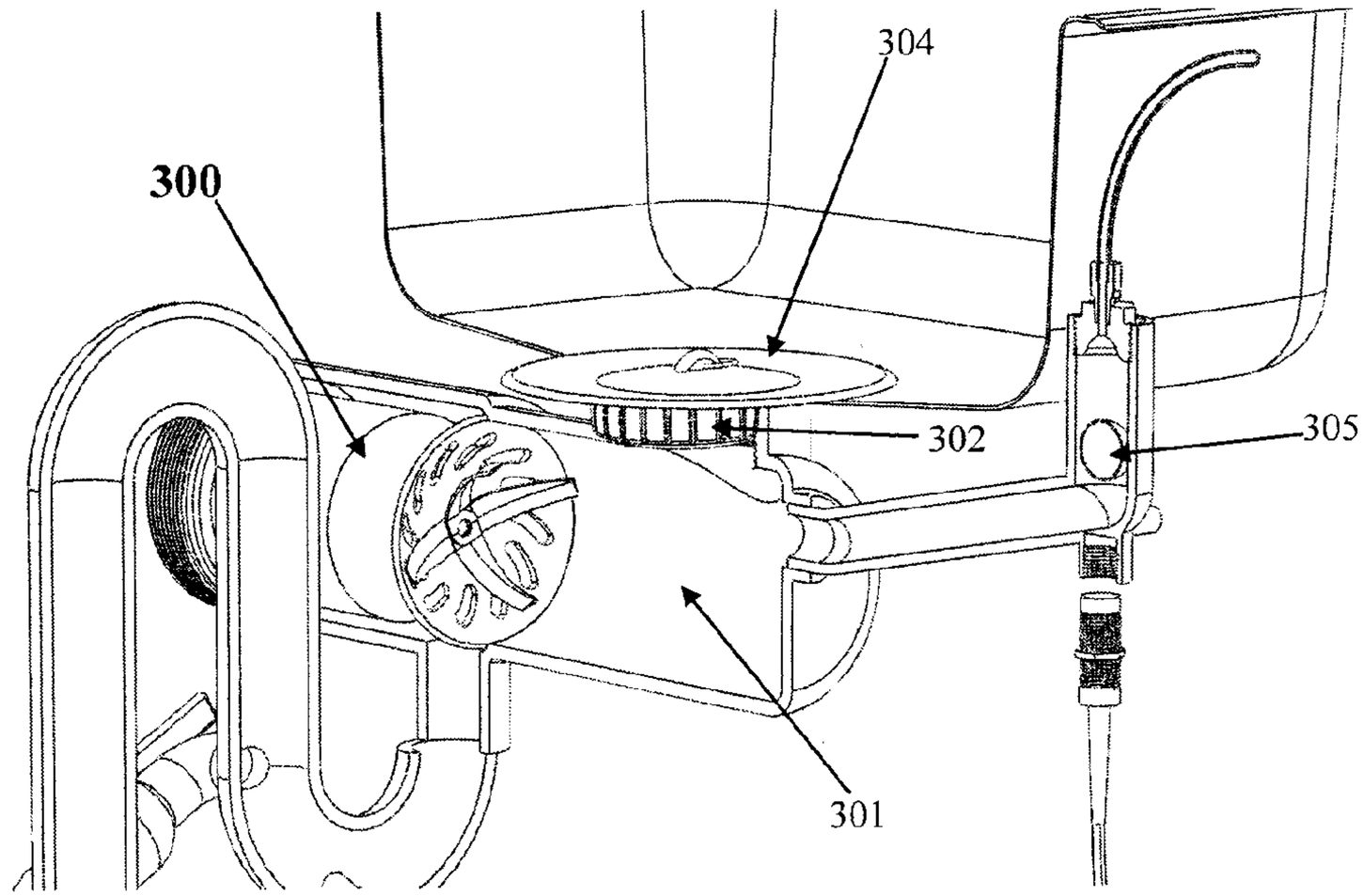

FIG. 4

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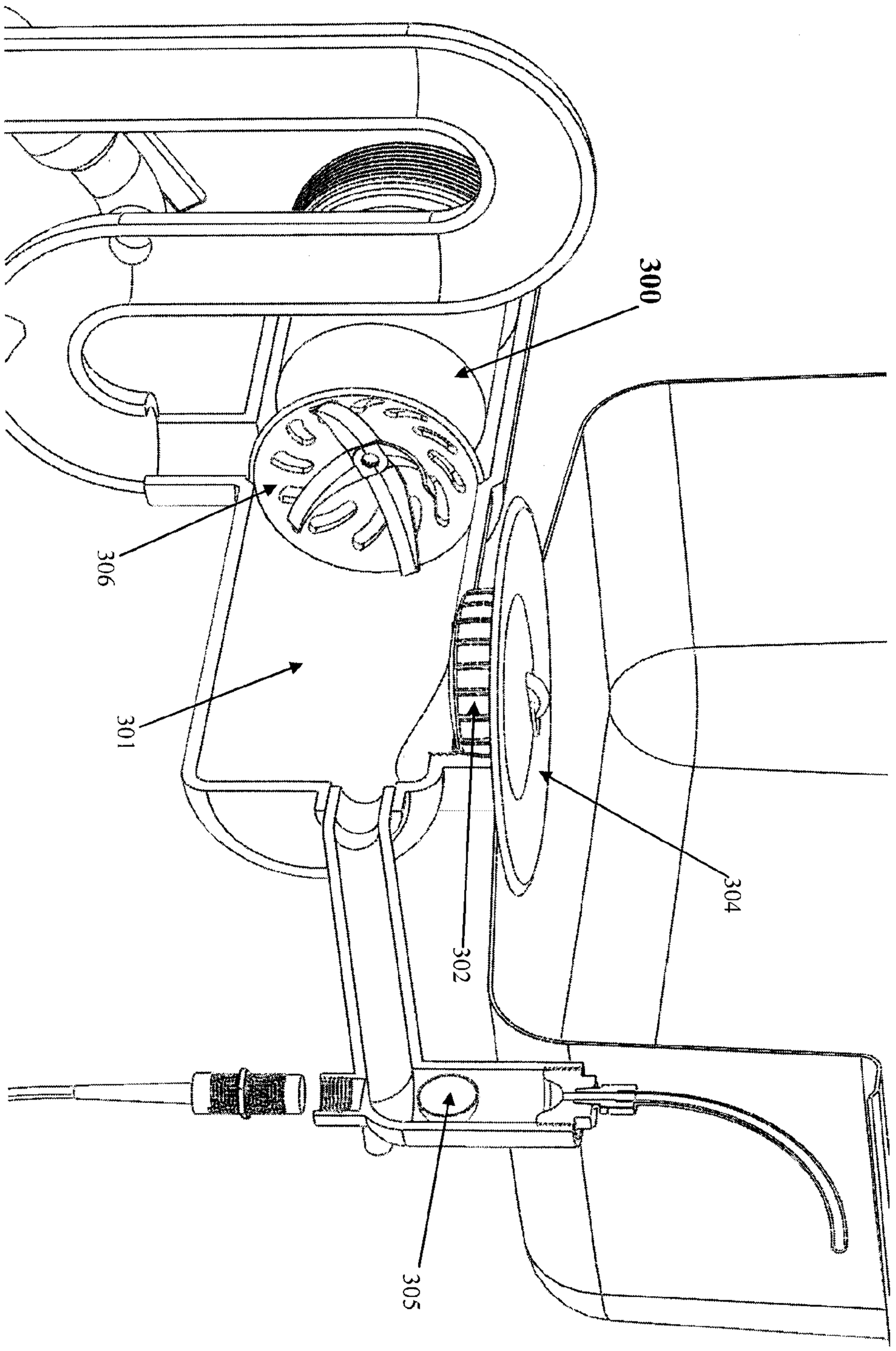

FIG. 5

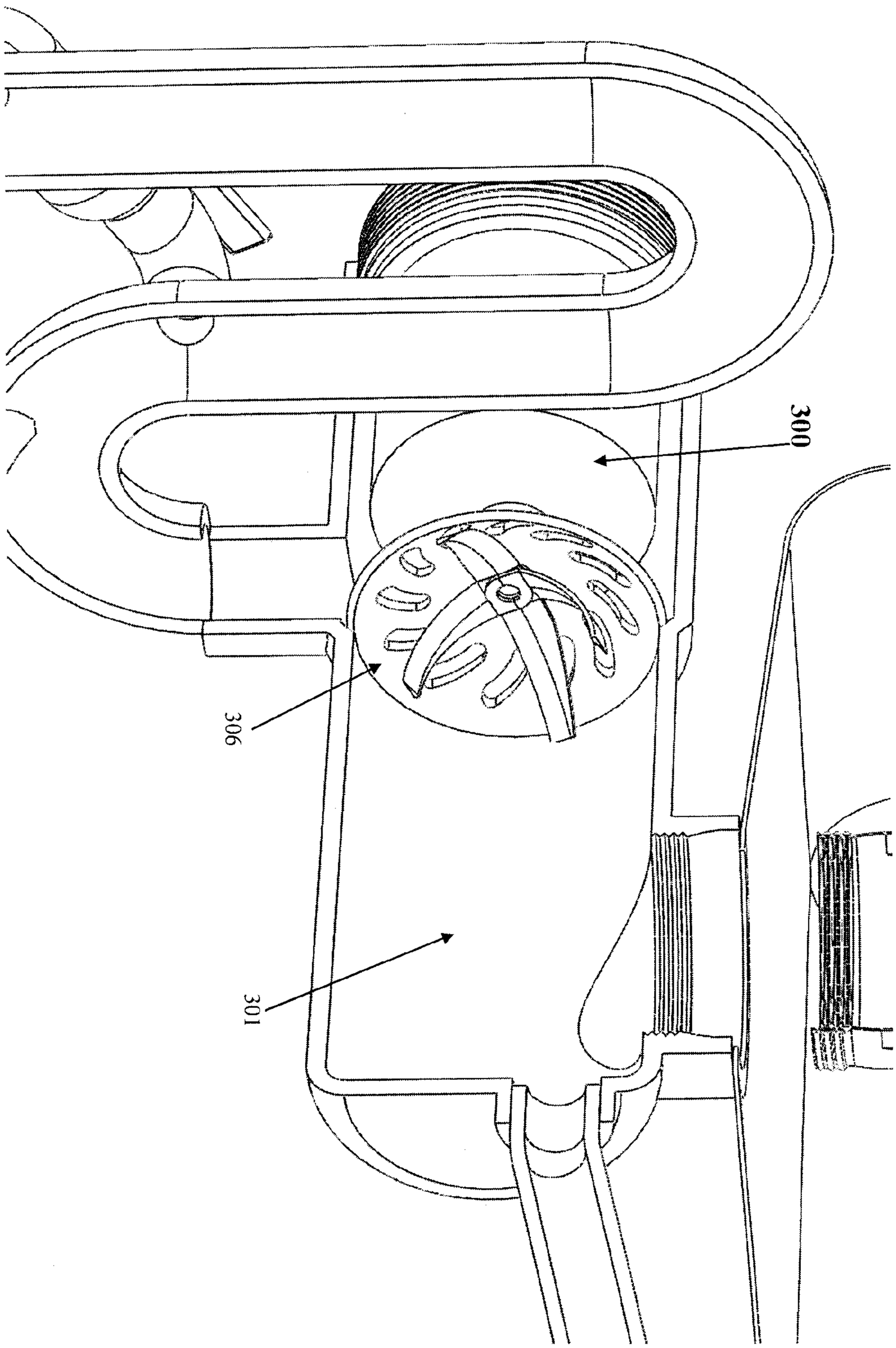

FIG. 6

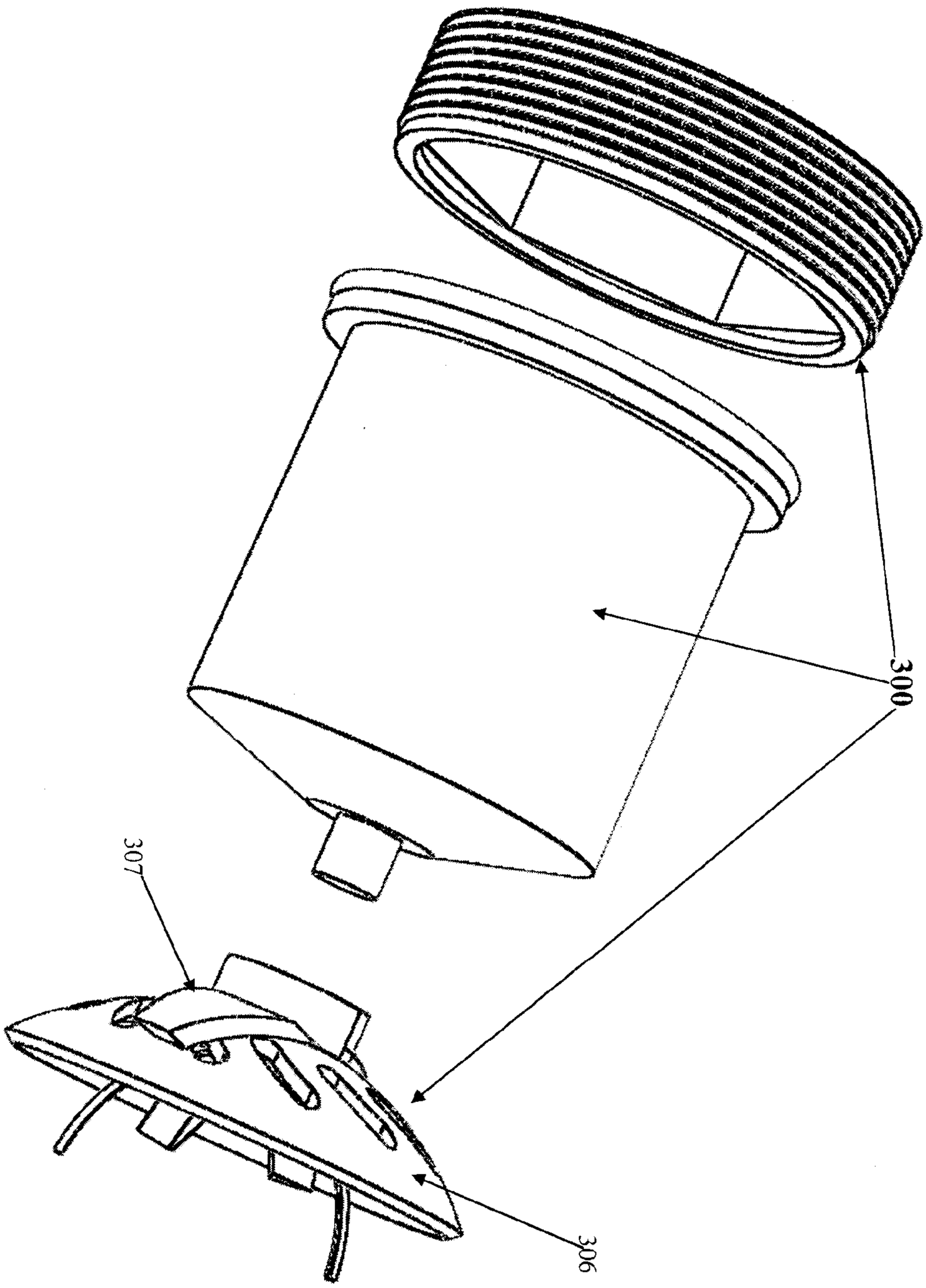

FIG. 7

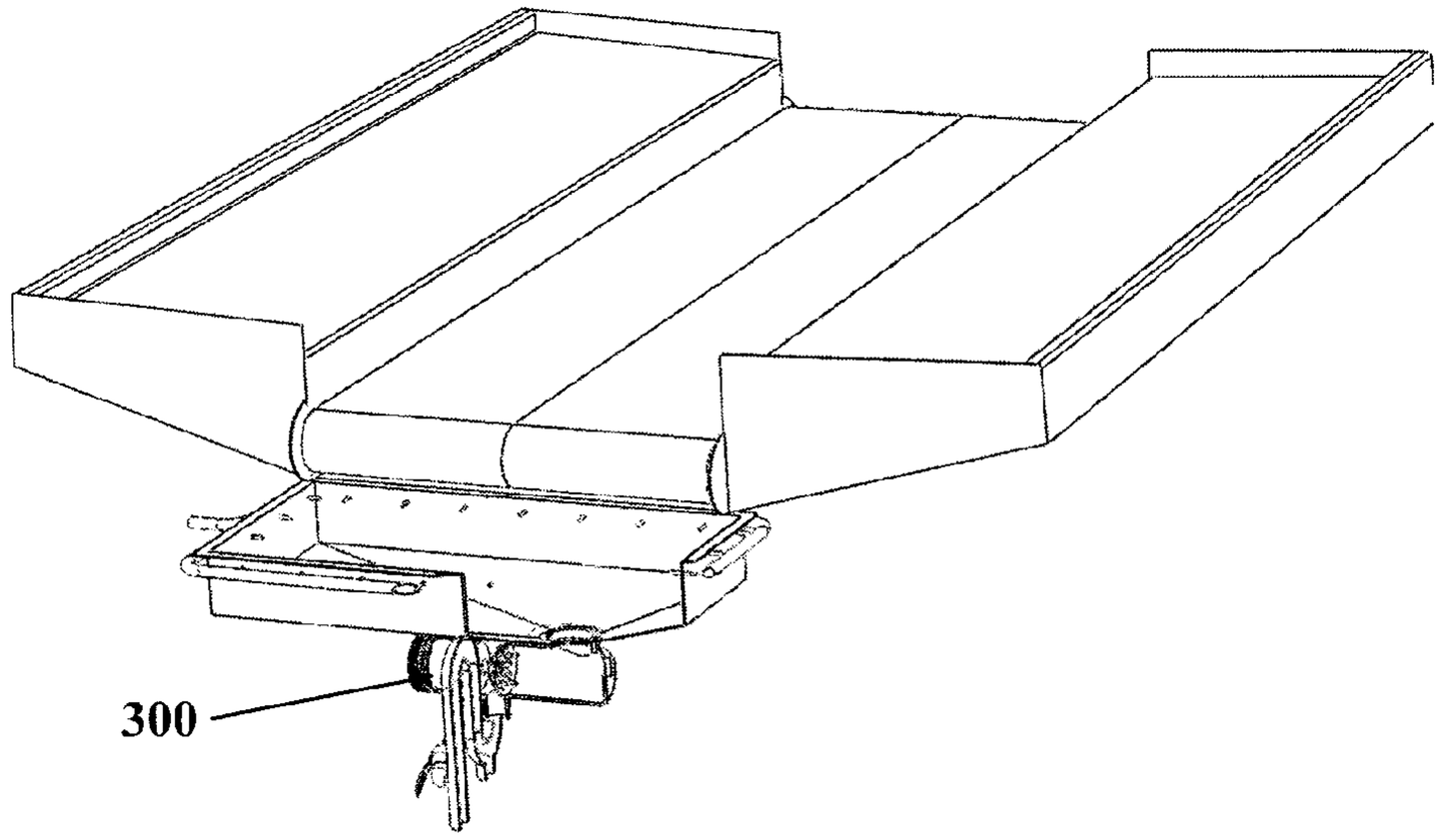

FIG. 8

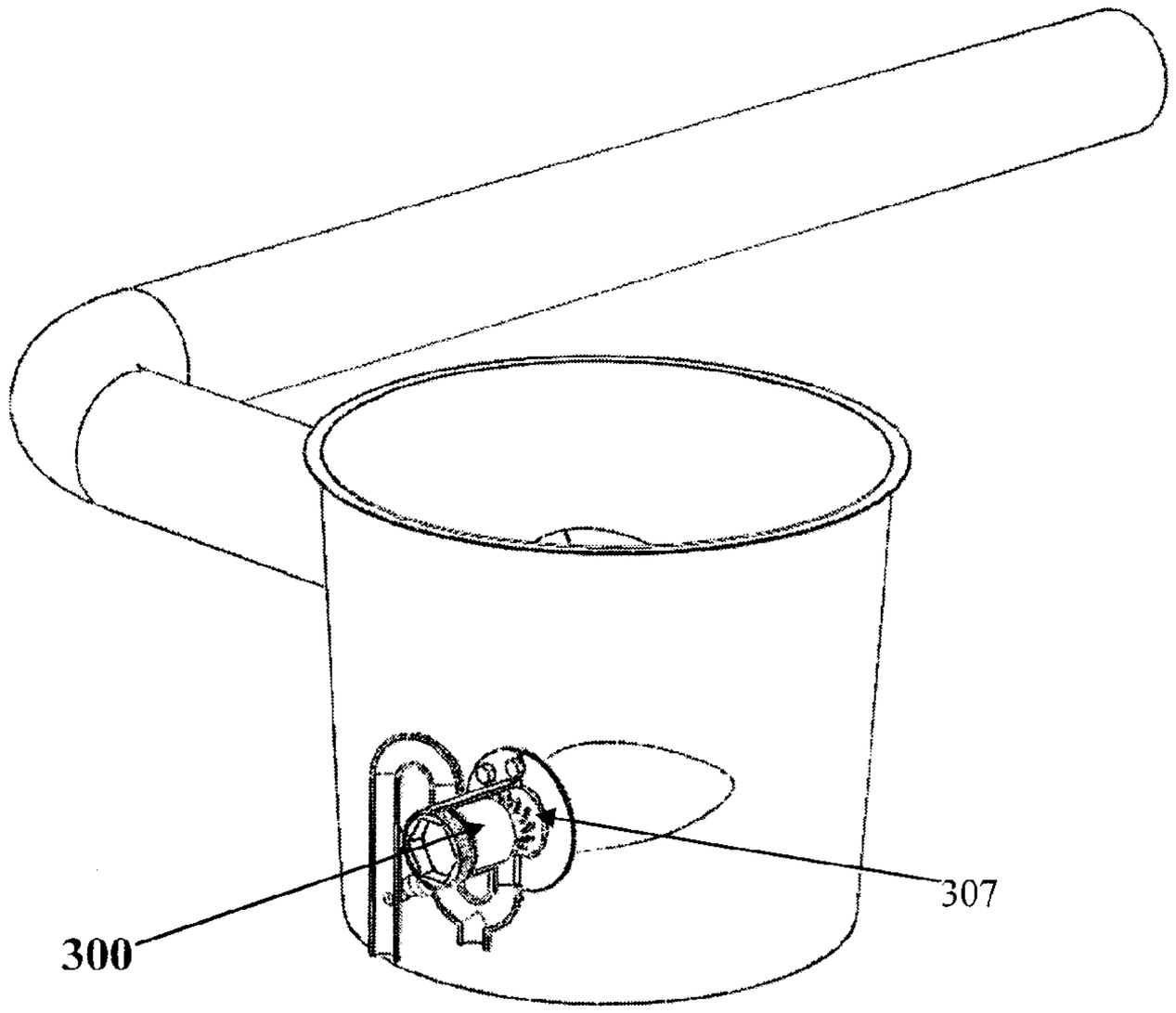

FIG. 9

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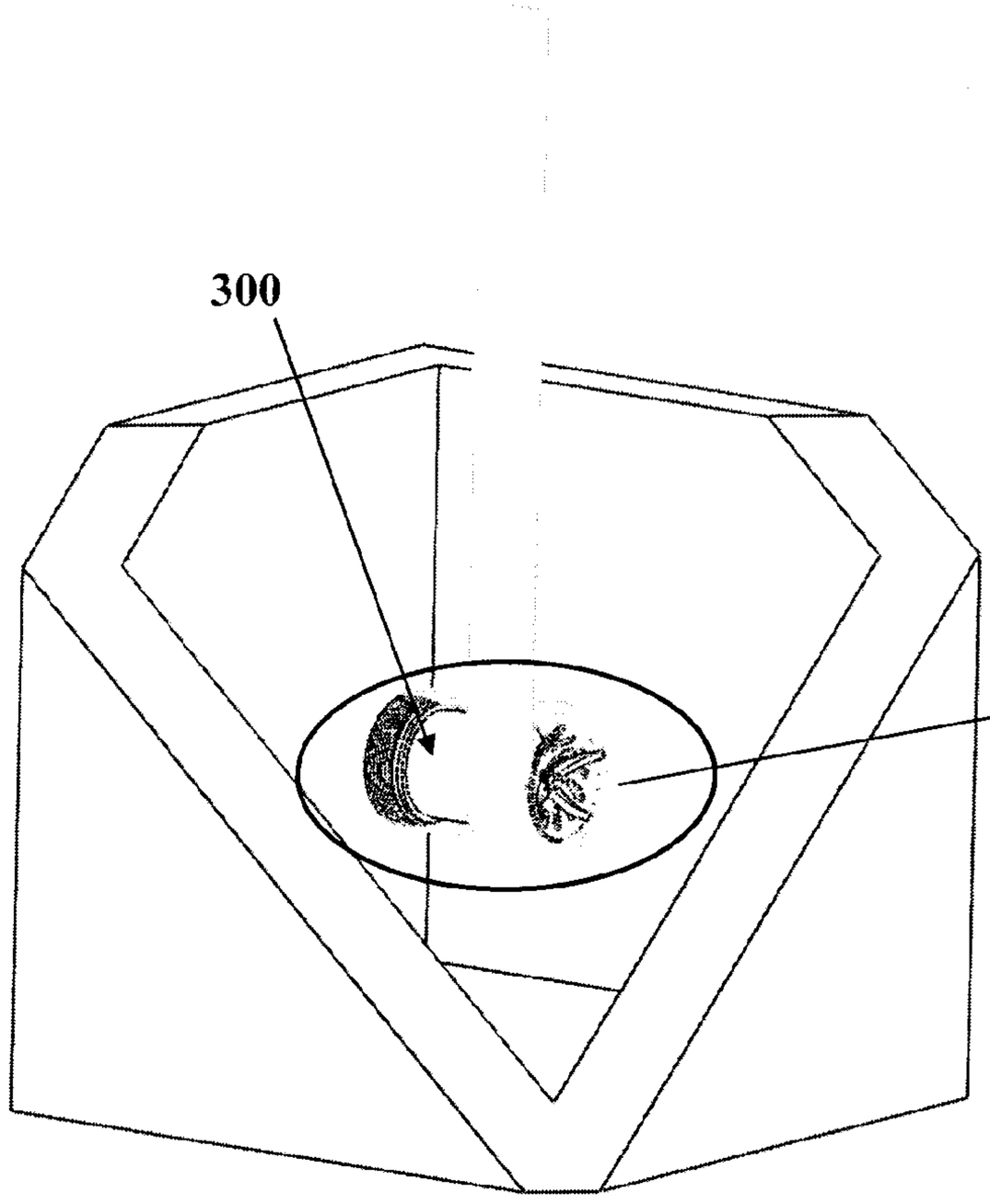

FIG. 10A

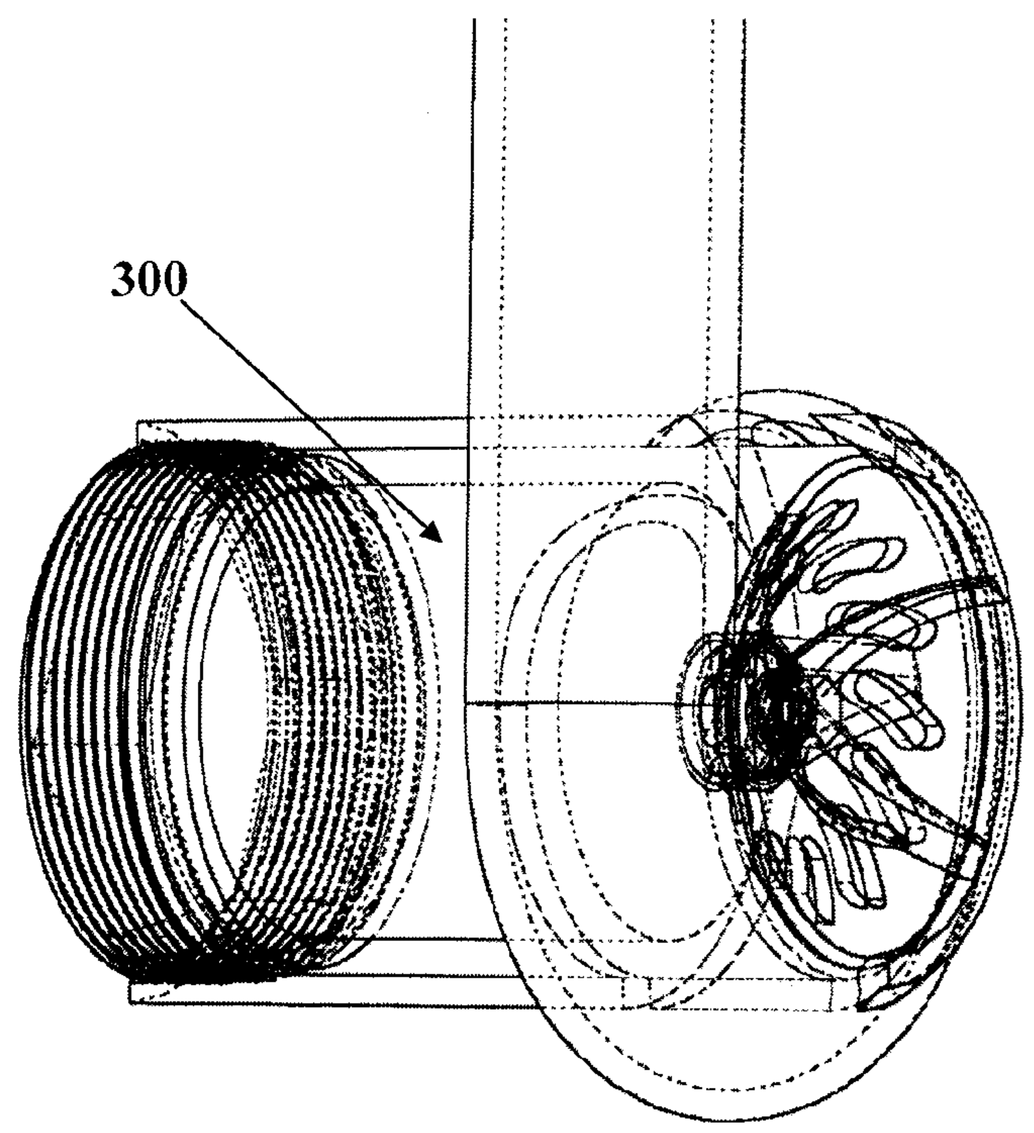

FIG. 10B

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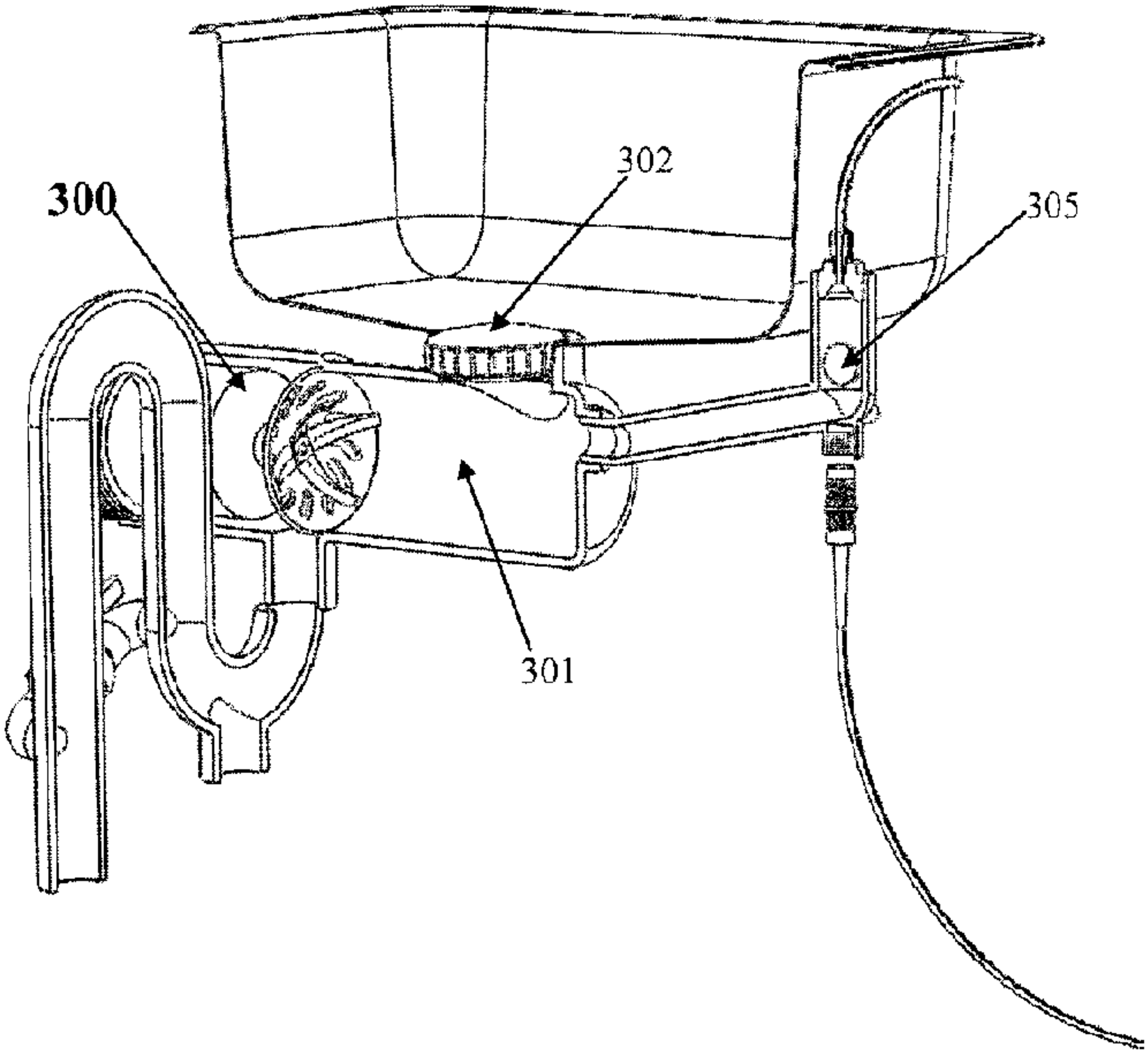
300
302
305
301