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(54) Water jetting apparatus with magnetic driven structure

(57) A water jetting apparatus with a magnetic driven structure applied to a massage bathtub includes at least a motor (1) and a centrifugal blade unit (5). The centrifugal blade unit (5) is driven by the motor (1) for drawing and jetting water. The present invention is to provide the magnetic driven structure between the motor (1) and the centrifugal blade unit (5) to improve the leaking of a direct transmission of a shaft.

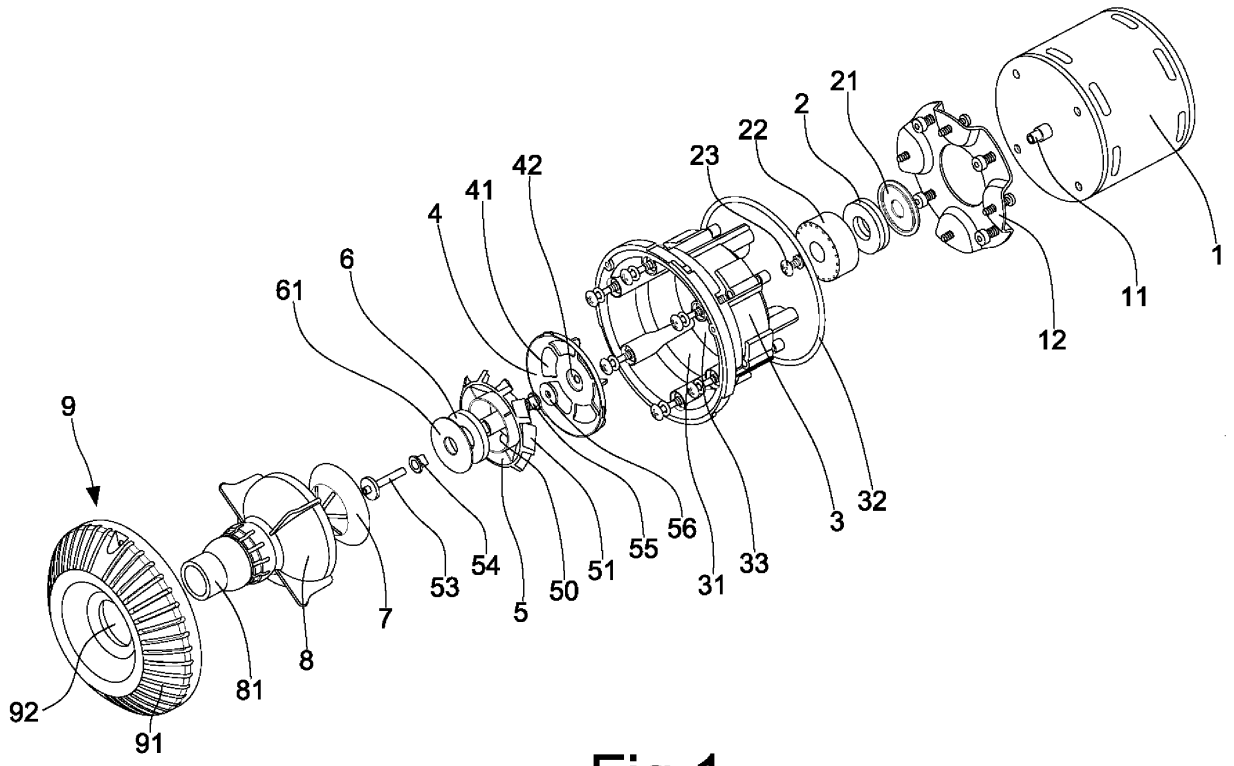

Fig.1

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Description

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

[0001] The present invention relates to a water jetting apparatus with a magnetic driven structure applied to a massage bathtub, and more particularly to one having a motor and a centrifugal blade unit. The centrifugal blade unit is driven by the motor for drawing and jetting water. The present invention is to provide the magnetic driven structure between the motor and the centrifugal blade unit to improve the leaking of a direct transmission of a shaft.

2. Description of the Prior Art

[0002] A conventional massage bathtub comprises an inlet, a motor, a plurality of connecting pipes and outlets. In order to deliver water, there are pipes installed in the structure. After a long time, there are dirt and grime stored up in the inlet, the pipes, and the outlets. The inlet and outlet of this structure is not exposed after installation. The parts are not detachable, which is impossible to clean the interior of the pipes. Further, the motor and blades are driven by a shaft. The blades are disposed in the bathtub and connected to the motor. A water-proof sleeve is provided to prevent water. After a long time, the water-proof sleeve suffers a lot of wear and tear, which may cause leakage.

[0003] Accordingly, the inventor of the present invention has devoted himself based on his many years of practical experiences to the development of a new jetting apparatus for drawing and draining water to overcome the aforesaid shortcomings.

SUMMARY OF THE INVENTION

[0004] According to the present invention, there is provided a water jetting apparatus with a magnetic driven structure comprising a motor comprising an output shaft; a first magnetic member coupled to the output shaft, the first magnetic member being driven by the output shaft; a second magnetic member located near the first magnetic member; and a centrifugal blade unit coupled to the second magnetic member, the centrifugal blade unit being driven by the second magnetic member.

[0005] The primary object of the present invention is to provide a water jetting apparatus with a magnetic driven structure, which provides an indirect transmission by means of magnetism to prevent leakage.

[0006] Another object of the present invention is to provide a water jetting apparatus with a magnetic driven structure, which overcomes the problem for installation of pipes and is easy to clean.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

Fig. 1 is an exploded view of a preferred embodiment of the present invention;

Fig. 2 is an illustrating view showing the operation of the preferred embodiment the present invention;

Fig. 3 is a partially enlarged cross-sectional view of the preferred embodiment of the present invention;

Fig. 4 is a cross-sectional view of the preferred embodiment of the present invention in an operating state;

Fig. 5 is another cross-sectional view of the preferred embodiment of the present invention in an operating state; and

Fig. 6 is an exploded view of another preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0008] As shown in Figs. 1 through 3, a water jetting apparatus with a magnetic driven structure, mounted on the wall of a bathtub or a hydropathic pool, in accordance with a preferred embodiment of the present invention comprises a motor 1, a first magnetic member 2, a main fixing base 3, a blade cover 4, a centrifugal blade unit 5, a second magnetic member 6, a drawing water cover 7, a blade shell 8, and a front net lid 9.

[0009] The motor 1 comprises an output shaft 11. The motor 1 is disposed outside the wall of a bathtub. The output shaft 11 is toward the interior of the bathtub. The motor 1 further comprises a holder 12 if necessary.

[0010] The first magnetic member 2 is coupled to the output 11. In this embodiment, the magnetic member 2 is located between a first protecting cover 21 and a first sleeve 22. A screw 23 is provided to connect the first sleeve 22, the first magnetic member 2, and the first protecting cover 21 to the output shaft 11. The first magnetic member 2 has two opposite poles, S pole and N pole. The proportion and arrangement of the S pole and the N pole are adjustable and changeable.

[0011] The main fixing base 3 has a bowl-like body and comprises a chamber 31 therein. The chamber 31 has a bottom to form a closed side 33. A water-proof washer 32 is provided outside the main fixing base.

[0012] The blade cover 4 is located in the chamber 31 of the main fixing base 3 and attached to the closed side 33. The blade cover 4 has a plurality of apertures 41 and a recess 42.

[0013] The centrifugal blade unit 5 comprises a plurality of blades 51 and a trough 50 at a central portion thereof. The centrifugal blade unit 5 is coupled to the blade

cover 4.

[0014] The second magnetic member 6 is located in the trough 50 of the centrifugal blade unit 5. A second protecting cover 61 is provided on the second magnetic member 6, preventing the second magnetic member 6 from disengaging from the trough 50. The second magnetic member 6 has two opposite poles, S pole and N pole. The proportion and arrangement of the S pole and the N pole are adjustable and changeable. A radiating bushing 52, a blade axle 53, a first axle sleeve 54, a second axle sleeve 55, and a bushing 56 are provided to locate all the parts in place.

[0015] The drawing water cover 7 is located outside the centrifugal blade unit 5.

[0016] The blade shell 8 is located outside the drawing water cover 7, and comprises a nozzle 81.

[0017] The front net lid 9 is located at a front end of the blade shell 8, and comprises a central outlet 92 and an inlet 91 around the outlet 92. The front net lid 9 is secured with a screw.

[0018] As shown in Fig. 2, when the motor 1 is activated, the output shaft 11 will be linked to drive the first magnetic member 2 while the second magnetic member 6 attached to the closed side 33 will be driven by the first magnetic member 2 due to the magnetism of the first magnetic member 2 so that the centrifugal blade unit 5 is operated through the first magnetic member 2 and the second magnetic member 6 by the motor 1.

[0019] As shown in Fig. 4, when the motor 1 is activated to link the centrifugal blade unit 5 through the first magnetic member 2 and the second magnetic member 6, water will be drawn from the inlet 91 into the chamber 31, passing through an outer edge of the blade shell 8, the apertures 41, the passage between the blade shell 8 and the drawing water cover 7 along with the continuous motion of the centrifugal blade unit 5, and finally jetted from the nozzle 81 to get the jetting water for a massage bathtub.

[0020] The recess 42 of the blade cover 4 is adapted to accommodate the second bushing 56 and to shorten the distance between the first magnetic member 2 and the second magnetic member 6.

[0021] The blade axle 53 is hollow and has a passage 531 therein, as shown in Fig. 5. The bottom of the blade cover 4 may be provided with protruding ribs (not shown in the drawings) to form a gap between the blade cover 4 and the closed side 33 so that the water flows through the gap between the blade cover 4 and the closed side 33 and into the passage 531 of the blade axle 53. The water is proceeded to radiate and cool by the radiating bushing 52, the first axle sleeve 54, the second axle sleeve 55 and the bushing 56 around the blade axle 53. The water entering the passage 531 is continuously drained toward the nozzle 81 due to the siphon action.

[0022] The angle of the nozzle 81 is adjustable. The nozzle 81 may be formed with a plurality of openings 82, as shown in Fig. 6.

[0023] As shown in Fig. 6, the front net lid 9 may be provided with a sealing board 911, preventing sucking too much air because the water is not tall enough.

[0024] Although the invention has been shown and described with respect to the preferred embodiment, it will be understood by those skilled in the art that various changes and modifications may be made without departing from the spirit and scope of the invention as defined in the following claims.

Claims

1. A water jetting apparatus with a magnetic driven structure, comprising:

   a motor (1) comprising an output shaft;
   a first magnetic member (2) coupled to the output shaft, the first magnetic member (2) being driven by the output shaft;
   a second magnetic member (6) located near the first magnetic member (2); and
   a centrifugal blade unit (5) coupled to the second magnetic member (6), the centrifugal blade unit (5) being driven by the second magnetic member (6).

2. The water jetting apparatus with a magnetic driven structure as claimed in claim 1, wherein the first magnetic member (2) has S pole and N pole, and the second magnetic member (6) has S pole and N pole.

3. The water jetting apparatus with a magnetic driven structure as claimed in claim 1, wherein the first magnetic member (2) is located between a first protecting cover (21) and a first sleeve (22), a screw (23) being provided to connect the first sleeve (22), the first magnetic member (2), and the first protecting cover (21) to the output shaft (11).

4. The water jetting apparatus with a magnetic driven structure as claimed in claim 1, further comprising a main fixing base (3), the main fixing base (3) having a bowl-like body and comprising a chamber (31) therein, the chamber (31) having a bottom to form a closed side (33), the motor (1) and the first magnetic member (2) being disposed on an outer side of the main fixing base (3), the second magnetic member (6) and the centrifugal blade unit (5) being coupled to the chamber (31) of the main fixing base (3).

5. The water jetting apparatus with a magnetic driven structure as claimed in claim 4, wherein a blade cover, the centrifugal blade unit (5) and the second magnetic member (6) are coupled to the chamber (31) of the main fixing base (3) in sequence.

6. The water jetting apparatus with a magnetic driven structure as claimed in claim 1, wherein the centrif-

ugal blade unit (5) has a trough (50) for accommodation of the second magnetic member (6).

7. The water jetting apparatus with a magnetic driven structure as claimed in claim 5, wherein the centrifugal blade unit (5) has a trough (50) for accommodation of the second magnetic member (6).

8. The water jetting apparatus with a magnetic driven structure as claimed in claim 7, wherein a second protecting cover (61) is provided on the second magnetic member (6) located in the trough (50) of the centrifugal blade unit (5).

9. The water jetting apparatus with a magnetic driven structure as claimed in claim 8, wherein the blade cover, the centrifugal blade unit (5) and the second magnetic member (6) are located in place with a blade axle (53).

10. The water jetting apparatus with a magnetic driven structure as claimed in claim 9, wherein the blade cover is formed with a recess (42) for accommodation of a bushing (56) on the blade axle (53).

11. A water jetting apparatus with a magnetic driven structure, wherein the apparatus is coupled on a wall of a bathtub or a hydrapathic pool, comprising:

a motor (1) comprising an output shaft (11);
a first magnetic member (2) coupled to the output shaft (11), the first magnetic member (2) being driven by the output shaft (11);
a main fixing base (3) having a blow-like body and comprising a chamber (31) therein;
a blade cover coupled to the chamber (31) of the main fixing base (3), the blade cover having a plurality of apertures (41);
a centrifugal blade unit (5) coupled to the blade cover, the centrifugal blade unit (5) having a plurality of blades (51) and a trough (50);
a second magnetic member (6) located in the trough (50) of the centrifugal blade unit (5); and
a blade axle (53) for coupling the centrifugal blade unit (5) and the blade cover to the chamber (31) of the main fixing base (3).

12. The water jetting apparatus with a magnetic driven structure as claimed in claim 11, wherein the centrifugal blade unit (5) further comprises a drawing water cover (7), a blade shell (8) and a front net lid (9), the drawing water cover (7) being disposed outside the centrifugal blade unit (5), the blade shell (8) being disposed outside the drawing water cover (7) and comprising a nozzle (81), the front net lid (9) being disposed at a front end of the blade shell (8) and comprising a central outlet and an inlet around the outlet.

13. The water jetting apparatus with a magnetic driven structure as claimed in claim 11, wherein the first magnetic member (2) is located between a first protecting cover (21) and a first sleeve (22), a screw (23) being provided to connect the first sleeve (22), the first magnetic member (2), and the first protecting cover (21) to the output shaft (11).

14. The water jetting apparatus with a magnetic driven structure as claimed in claim 11, wherein a second protecting cover (61) is provided on the second magnetic member (6) located in the trough (50) of the centrifugal blade unit (5).

15. The water jetting apparatus with a magnetic driven structure as claimed in claim 11, wherein the blade cover is formed with a recess (42) for accommodation of a bushing (56) on the blade axle (53), and the blade axle (53) is formed with a passage therein and a gap is defined between the blade cover and the closed side (33) for water entering the passage of the blade axle (53).

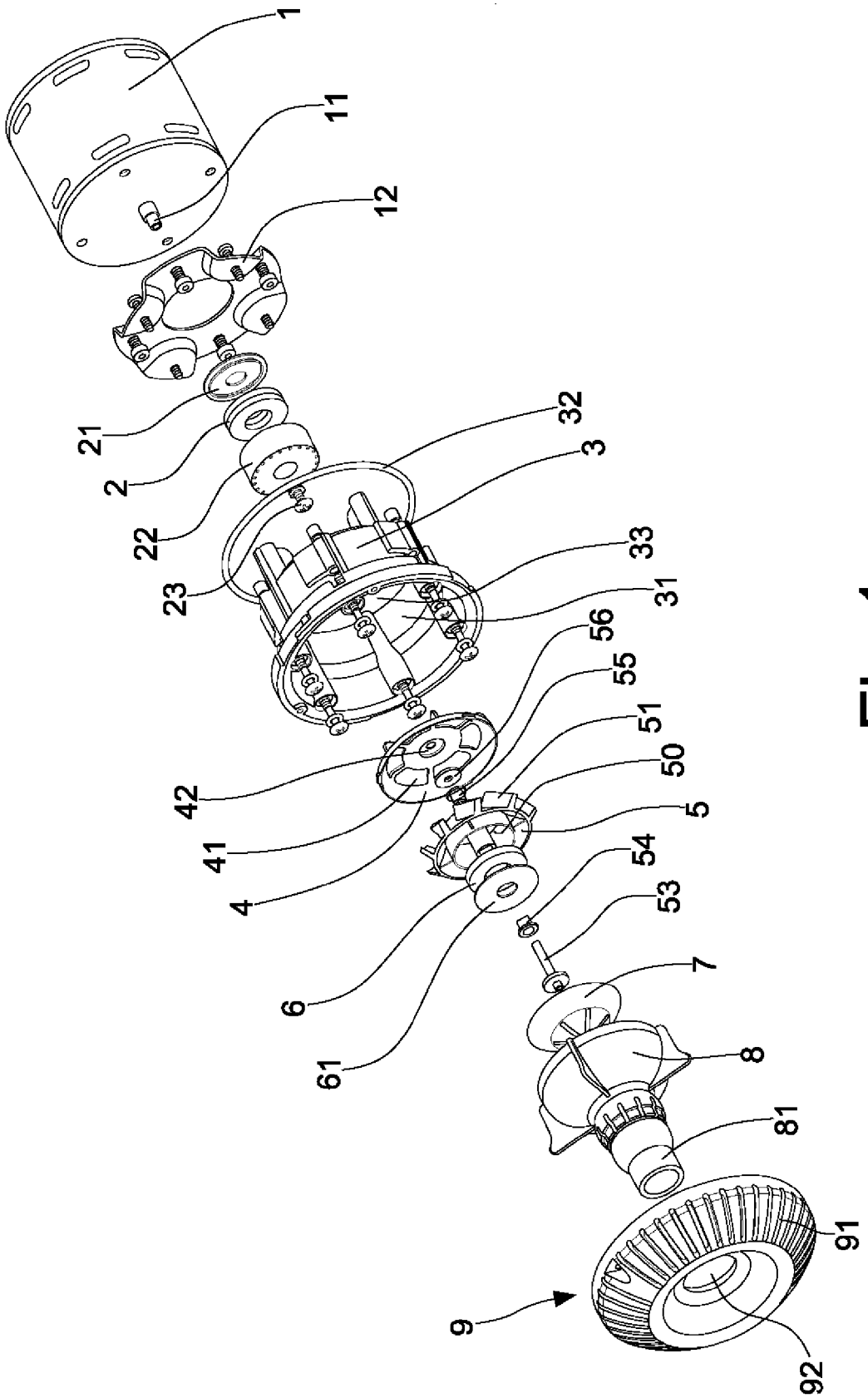

Fig.1

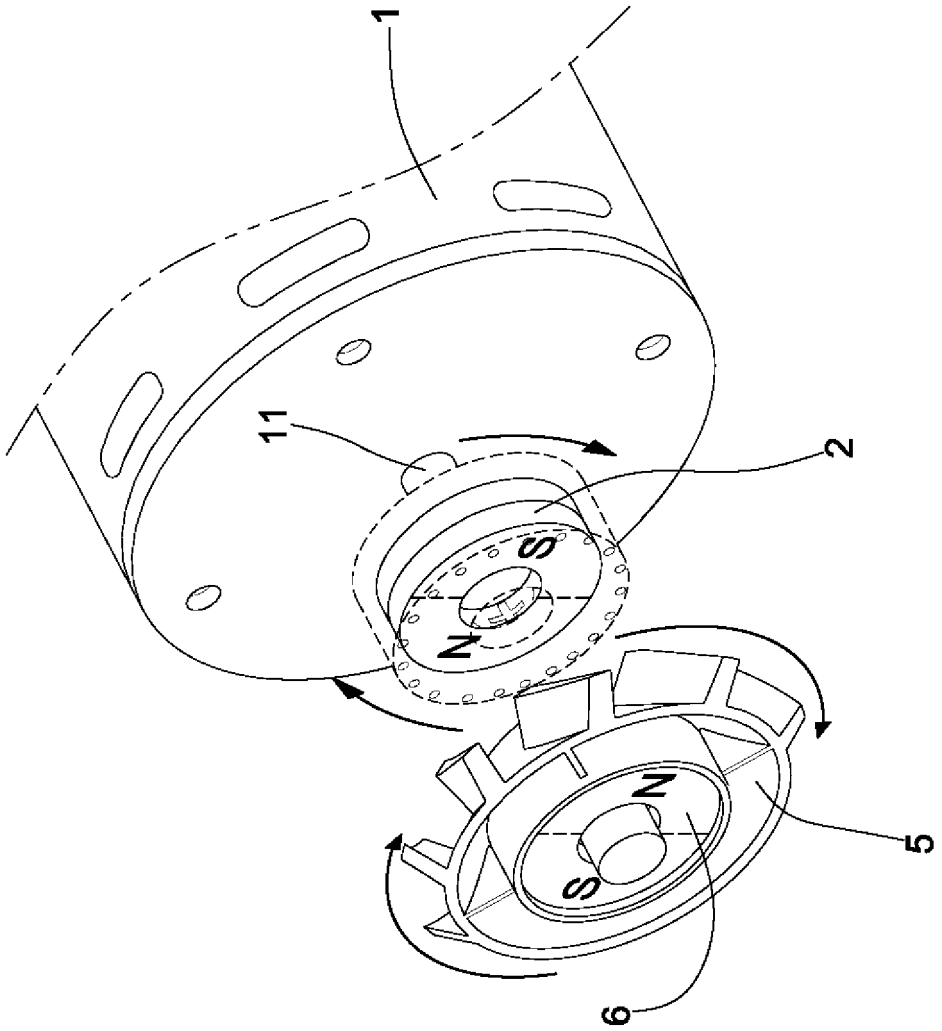

Fig.2

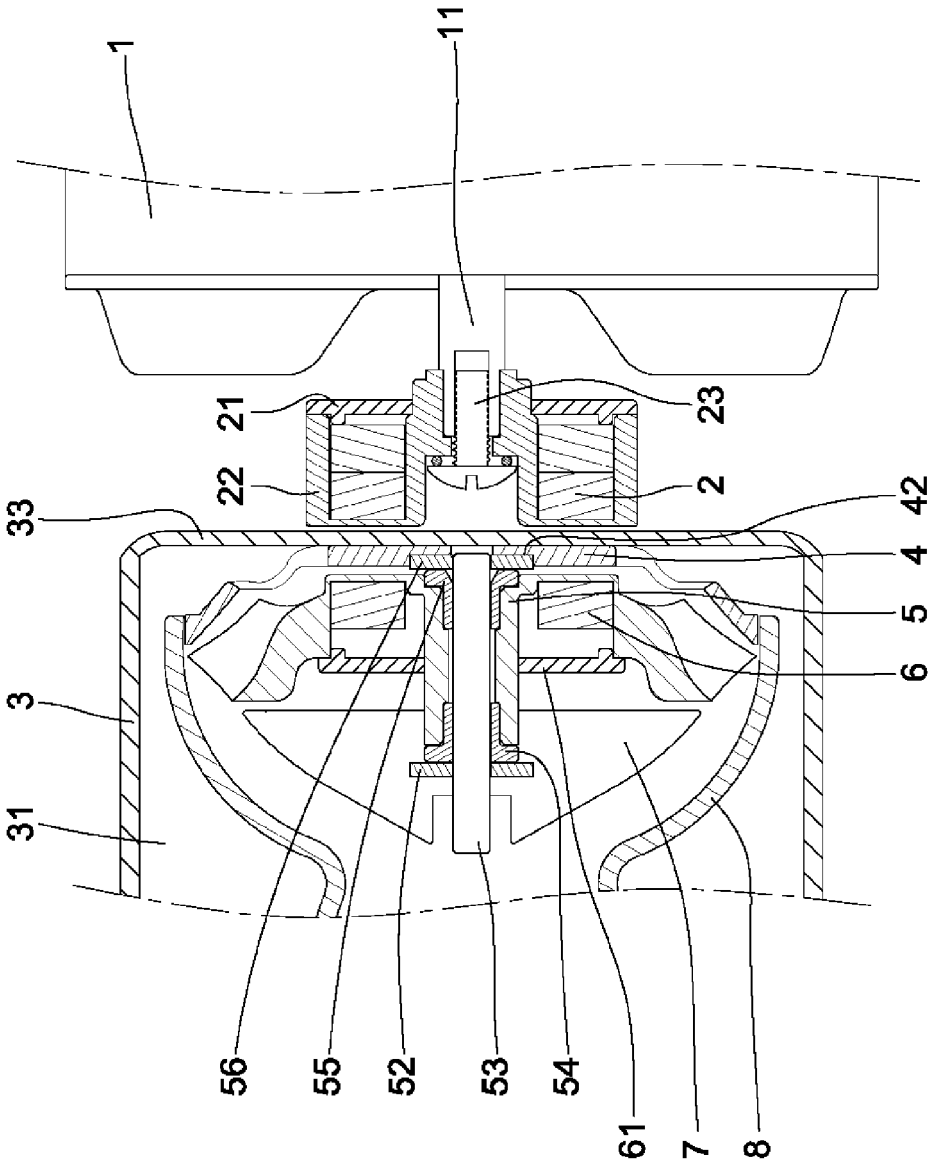

Fig.3

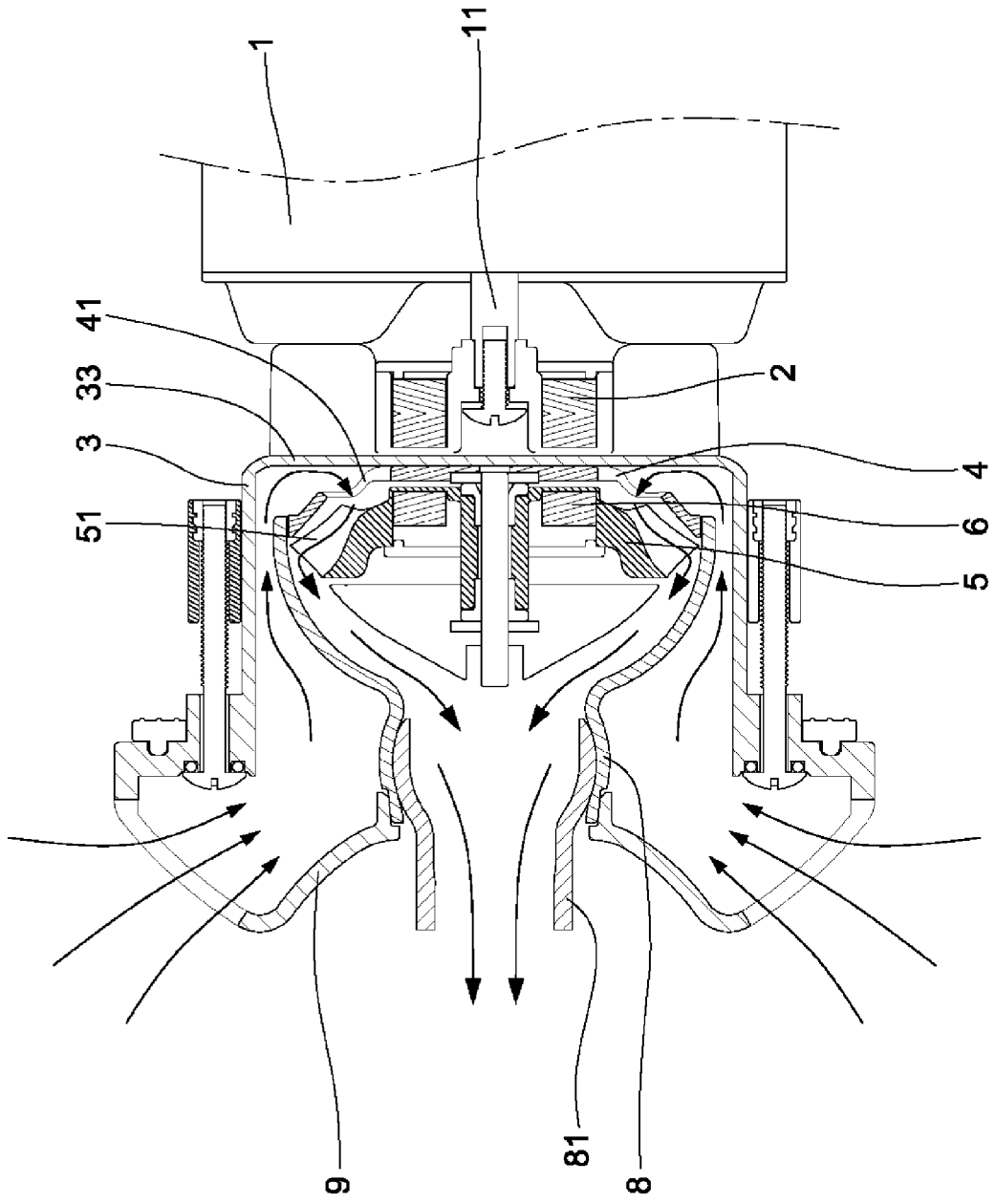

Fig.4

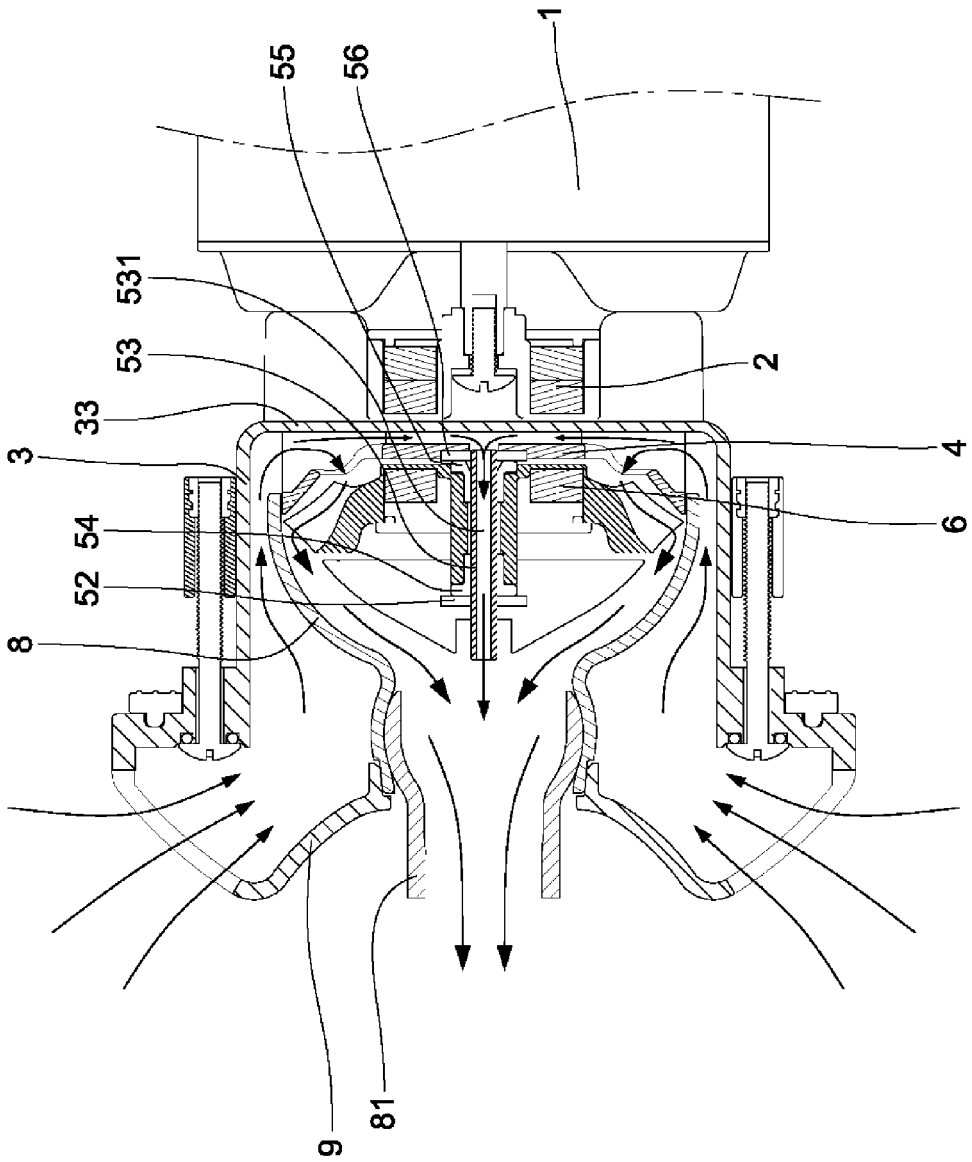

Fig.5

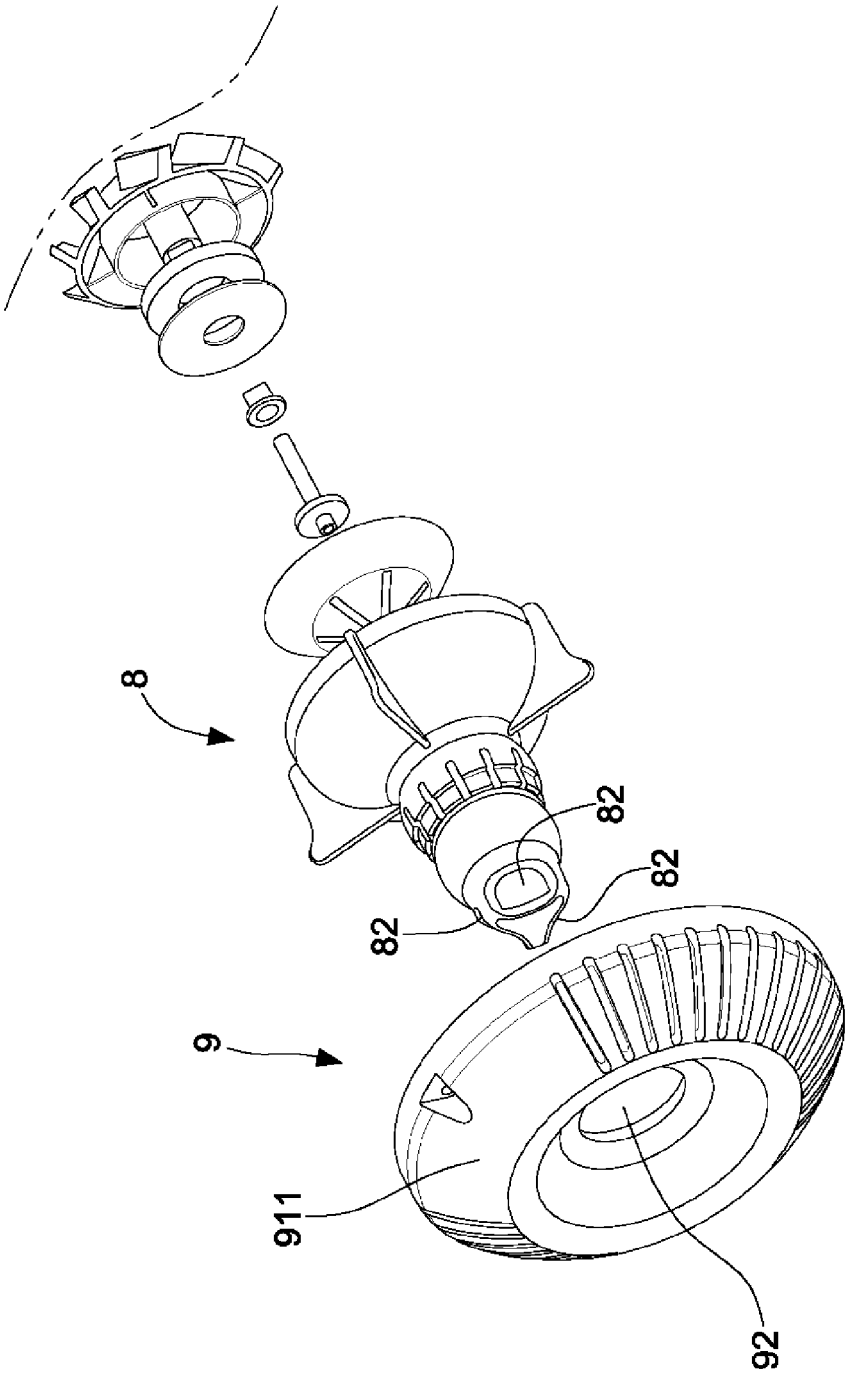

Fig.6

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EUROPEAN SEARCH REPORT

Application Number
EP 09 16 3307

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	25 September 2009	Lundblad, Hampus

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 09 16 3307

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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