



US 20190154039A1

(19) **United States**(12) **Patent Application Publication**
Wang(10) **Pub. No.: US 2019/0154039 A1**(43) **Pub. Date: May 23, 2019**(54) **ANTI-BLOCKING ULTRA-LOW WATER
LEVEL LAND SUBMERSIBLE AMPHIBIOUS
PUMP***F04D 29/00* (2006.01)*F04D 29/22* (2006.01)*F04D 29/42* (2006.01)*F04D 29/44* (2006.01)*F04D 29/70* (2006.01)(71) Applicant: **GP Enterprises Co., Ltd.**, Suzhou,
Jiangsu (CN)(52) **U.S. Cl.**CPC *F04D 13/06* (2013.01); *F04D 13/08*(2013.01); *F04D 29/007* (2013.01); *F04D**29/708* (2013.01); *F04D 29/426* (2013.01);*F04D 29/445* (2013.01); *F04D 29/2222*

(2013.01)

(72) Inventor: **Xian Wang**, Suzhou, Jiangsu (CN)(73) Assignees: **GP Enterprises Co., Ltd.**, Suzhou,
Jiangsu (CN); **GP Enterprises Co.,
Ltd.**, Suzhou, Jiangsu (CN)(21) Appl. No.: **16/066,296**

(57)

ABSTRACT(22) PCT Filed: **Jun. 13, 2017**(86) PCT No.: **PCT/CN2017/088164**

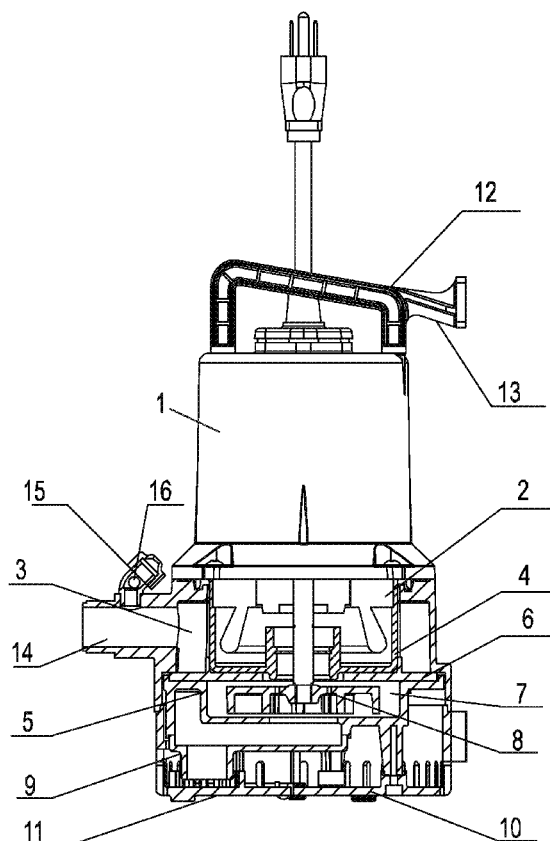
§ 371 (c)(1),

(2) Date: **Jun. 26, 2018**(30) **Foreign Application Priority Data**

May 23, 2017 (CN) 201710367109.2

Publication Classification(51) **Int. Cl.***F04D 13/06* (2006.01)*F04D 13/08* (2006.01)

The invention discloses an anti-blocking ultra-low water level land submersible amphibious pump, which comprises an outer shell body, a motor, a water tank, a motor housing, a flowing guiding disc, a cover plate, a flow guiding chamber, an impeller, a suction nozzle and a base. The motor and the water tank are provided in the outer shell body. The motor is disposed in the motor housing. A half of the motor housing is accommodated in the water tank. In the aforementioned manner, the present invention provides an anti-blocking type ultra-low water level land submersible amphibious pump, which has both functions of a ground pump and a submersible pump, realizes the amphibious function, has the advantages of convenient and flexible movement, and better expands the adaptability range of the pump.



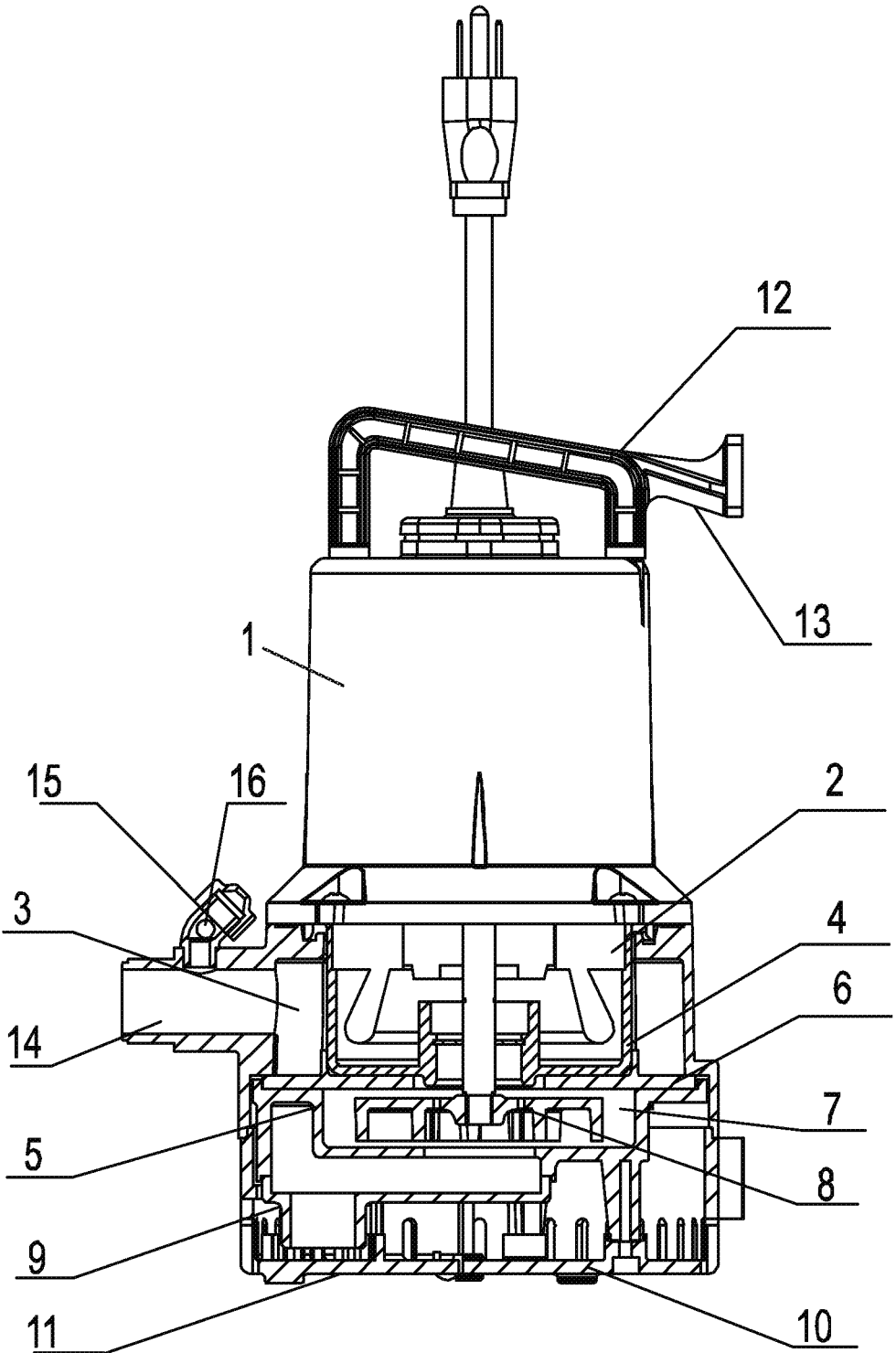


Fig. 1

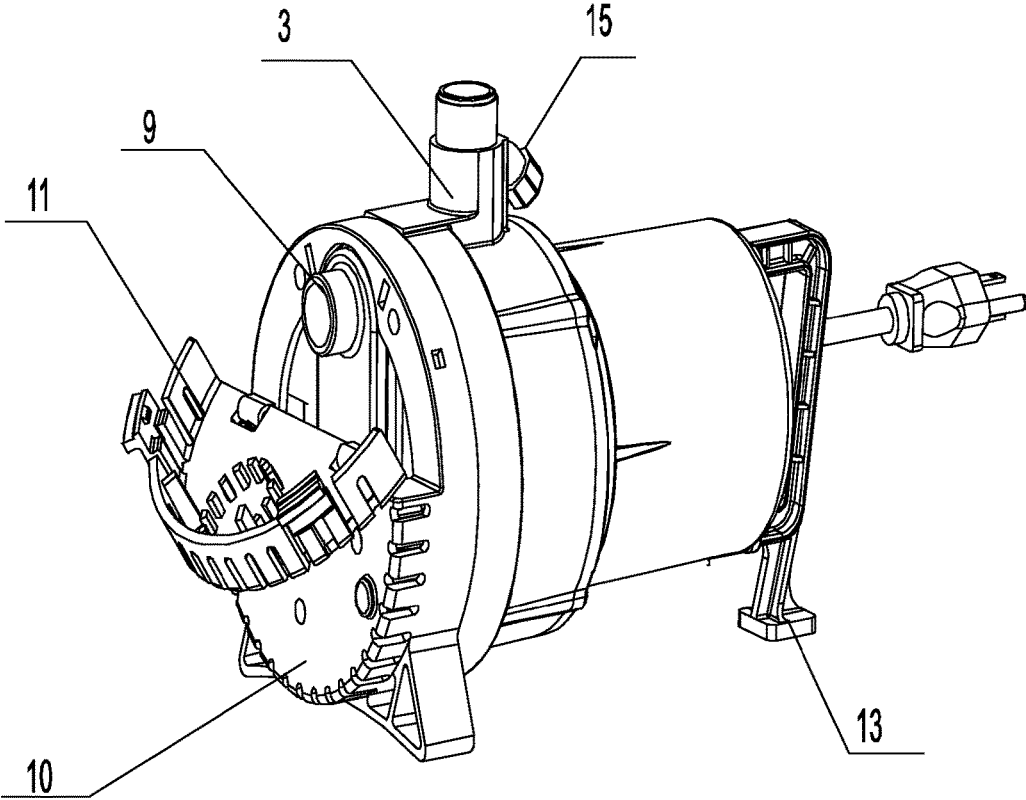


Fig. 2

ANTI-BLOCKING ULTRA-LOW WATER LEVEL LAND SUBMERSIBLE AMPHIBIOUS PUMP

FIELD OF THE INVENTION

[0001] The invention relates to the field of water pumps, in particular to an anti-blocking ultra-low water level land submersible amphibious pump.

BACKGROUND OF THE INVENTION

[0002] Developed country or region like Europe or the United States or others, household drainage pumps are generally divided into two types: one is a ground drainage pump; another is a submersible drainage pump; whereas a ground drainage pump can only be installed on land where is far away from the water, submersible pumps are only used in water. They cannot achieve a flexibility of one pump achieved multiple functions.

SUMMARY OF THE INVENTION

[0003] The technical problem to be solved by the present invention is to provide an anti-blocking type ultra-low water land submersible amphibious pump, which has the functions of a ground pump and a submersible pump, realizes the amphibious function on land and in water, has the advantages of convenient for use and flexible for moving, etc., and preferably expands the adaptation range of the pump.

[0004] To solve the above technical problems, one technical solution adopted by the present invention is: there is provided an anti-blocking type ultra-low water land submersible amphibious pump including: an outer shell body, a motor, a water tank, a motor housing, a flow guiding disc, a cover plate, a flow guiding chamber, an impeller, a suction nozzle, and a base, said motor and said water tank are disposed in the outer shell body, the motor is disposed in the motor housing, a half body of the motor housing is accommodated in said water tank, and the flowing guiding disc is fixed on the cover plate to form a flow guiding chamber, the cover plate is fixed on the motor housing, an impeller is disposed at the end of the motor shaft, the impeller is accommodated in the flow guiding chamber, the outer surface of the flow guiding disc is provided with a support, a suction nozzle is arranged on the support, and the base covers the suction nozzle and is fixed to the bottom of the outer shell body.

[0005] In a preferred embodiment of the present invention, the impeller is an enclosed impeller and the flow guiding disc is a dual-flow spiral flow guiding disc.

[0006] In a preferred embodiment of the present invention, a half-opened base is disposed on said base, an open-close hinge is disposed between the half-opened base and said base, the position of the half-opened base corresponding to said suction nozzle, and filter meshes are disposed on said half-opening base and said base.

[0007] In a preferred embodiment of the present invention, the upper end of the outer shell body is also provided with a dual-purpose handle, and the gripping portion of the dual-purpose handle extends out and formed a transverse leg.

[0008] In a preferred embodiment of the present invention, a side of the outer shell body is provided with a water outlet which communicates with the water tank, an air exhaust

nozzle is provided on the wall of the water outlet, and a steel ball is arranged in the exhaust nozzle.

[0009] The beneficial effects of the present invention are as follows: The present invention provides a kind of anti-blocking ultra-low water land submersible amphibious pump, which simultaneously has the functions of a surface pump and a submersible pump, realizes land and water amphibious function, has the advantages of convenient for use and flexible for moving, etc., and preferably expands the adaptation range of the pump.

BRIEF DESCRIPTION OF THE FIGURES

[0010] In order to more clearly illustrate the technical solutions in the embodiments of the present invention, the drawings used in the description of the embodiments will be briefly described below. Obviously, the drawings in the following description are merely some embodiments of the present invention. For those who skilled in the art, other drawings may also be obtained based on these drawings without paying any creative work. Therein:

[0011] FIG. 1 is a structural diagram of a preferred embodiment of an anti-blocking ultra-low water land submersible amphibious pump according to the present invention;

[0012] FIG. 2 is another structural diagram of a preferred embodiment of an anti-blocking ultra-low water land submersible amphibious pump according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0013] The following is clearly and completely describes of the technical solutions in the embodiments of the present invention. Apparently, the described embodiments are merely some but not all embodiments of the present invention. All other embodiments obtained by a person who is skilled in the art based on the embodiments of the present invention without creative efforts shall fall within the protection scope of the present invention.

[0014] As shown in FIG. 1-2, the embodiment of the present invention includes: an anti-blocking type ultra-low water land submersible amphibious pump including: an outer shell body 1, a motor 2, a water tank 3, a motor housing 4, a flow guiding disc 5, a cover plate 6, a flow guiding chamber 7, an impeller 8, a suction nozzle 9, and a base 10, said motor 2 and said water tank 3 are disposed in the outer shell body 1, the motor 2 is disposed in the motor housing 4, a half body of the motor housing 4 is accommodated in said water tank 3, and the flowing guiding disc 5 is fixed on the cover plate 6 to form a flow guiding chamber 7, the cover plate 6 is fixed on the motor housing 4, an impeller 8 is disposed at the end of the motor shaft, the impeller 8 is accommodated in the flow guiding chamber 7, the outer surface of the flow guiding disc 5 is provided with a support, a suction nozzle 9 is arranged on the support, and the base 10 covers the suction nozzle 9 and is fixed to the bottom of the outer shell body 1.

[0015] Wherein, the impeller 8 is an enclosed impeller and the flow guiding disc is a dual-flow spiral flow guiding disc.

[0016] Further, a half-opened base 11 is disposed on the base 10, and an open-close hinge is disposed between the half-opened base 11 and the base 10. A position of the

half-opened base **11** corresponds to the suction nozzle **9**, and both half-opened base **11** and the base **10** are provided with filter meshes.

[0017] Further, a dual-purpose handle **12** is further provided on the upper end of the outer shell body **1**, and the gripping portion of the dual-purpose handle **12** extends out laterally and formed a supporting foot **13**.

[0018] Further, a water outlet **14** communicating with the water tank **3** is disposed on a side surface of outer shell body **1**, an air exhausting nozzle **15** is disposed on the wall of the water outlet **14**, and a steel ball **16** is disposed in the air exhausting nozzle **15**.

[0019] The dual-flow spiral flow guiding disc **5** adopts a two water-ejective Archimedes spiral design so as to improve the hydraulic efficiency. When used as a submersible pump, the filter closed and acts as a base **10** to support the pump body and filters impurities; when used as a ground pump, the filter window opens and expose the pipe fitting. When used as a ground pump, the dual purpose handle **12** can act as a standing foot **13**. When the water pump is working, the impeller **8** discharges the water into the water tank **3** and the water surrounds and cools the housing of the motor **2** and then discharge the water outside the pump, by using this process to cool the motor **2**. When the pump used as a submersible pump, the water suction port is downwards disposed so that the water level can be pumped to a very low level. When used as a ground pump, it lay on aside and the suction pipe can be used as a jointing to a pipeline.

[0020] In summary, the present invention provides an anti-blocking type ultra-low water land submersible amphibious pump, which has the functions of a ground pump and a submersible pump, realizes submersible and land amphibious functions, and has the advantages of convenient and flexible to be moved, and can better expand the adaptation range of the pump.

[0021] The foregoing descriptions are merely embodiments of the present invention, and therefore do not mean to limit the scope of the present invention. Any implementation on the content of the present specification by using an alternative structure or equivalent process transformation,

or, direct or indirect application in the same field or in other related technical fields are in the protection scope of the present invention.

1. An anti-blocking ultra-low water level land submersible amphibious pump, comprising an outer shell body, a motor, a water tank, a motor housing, a flow guiding disc plate, a cover plate, a flow guiding chamber, an impeller, a suction nozzle, and a base, said motor and said water tank are disposed in the outer shell body, the motor is disposed in the motor housing, a half of the motor housing is accommodated in said water tank, and the flowing guiding disc is fixed on the cover plate to form a flow guiding chamber, the cover plate is fixed on the motor housing, an impeller is disposed at the end of the motor shaft, the impeller is accommodated in the flow guiding chamber, the outer surface of the flow guiding disc is provided with a support, a suction nozzle is arranged on the support, and the base covers the suction nozzle and is fixed to the bottom of the outer shell body.

2. The anti-blocking ultra-low water level land submersible amphibious pump according to claim **1**, wherein the impeller is an enclosed impeller and the flow guiding disc is a dual-flow spiral flow guiding disc.

3. The anti-blocking ultra-low water level land submersible amphibious pump according to claim **1**, wherein a half-opened base is disposed on said base, an open-close hinge is disposed between the half-opened base and said base, the position of the half-opened base corresponding to said suction nozzle, and filter meshes are disposed on said half-opening base and said base.

4. The anti-blocking ultra-low water level land submersible amphibious pump according to claim **1**, wherein the upper end of the outer shell body is also provided with a dual-purpose handle and the gripping portion of the dual-purpose handle extends out and formed a transverse leg.

5. The anti-blocking ultra-low water level land submersible amphibious pump according to claim **1**, wherein a side of the outer shell body is provided with a water outlet which communicates with the water tank, an air exhaust nozzle is provided on the wall of the water outlet, and a steel ball is arranged in the exhaust nozzle.

* * * * *