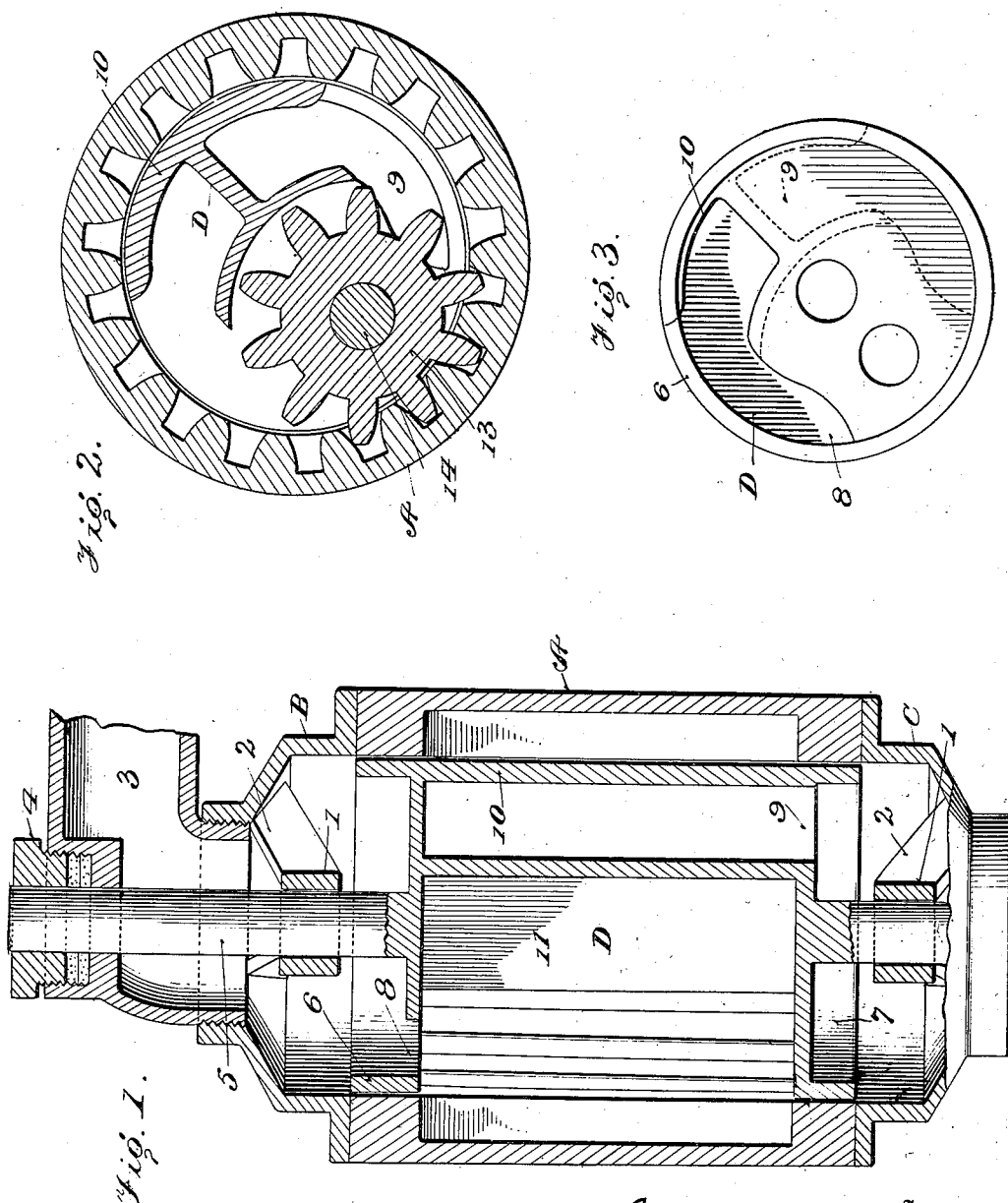


I. B. HUMPHREYS.
 ROTARY PUMP.
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969,478.

Patented Sept. 6, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

IRA BOYD HUMPHREYS, OF DENVER, COLORADO.

ROTARY PUMP.

969,478.

Specification of Letters Patent.

Patented Sept. 6, 1910.

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To all whom it may concern:

Be it known that I, IRA BOYD HUMPHREYS, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

My invention relates to an improvement in rotary pumps, and the object is to rotate the abutment or runner and the spur gear, whereby the outer casing is not rotated and the water is drawn into the casing by the suction action of the rotating parts and carried from the suction chamber between the abutment and the spur gear into the outlet chamber where the water is discharged through the top of the pump.

The invention consists of certain novel features of construction and combinations of parts, which will be hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a vertical sectional view; Fig. 2 is a cross section, and Fig. 3 is a top plan view of the abutment or runner.

A represents the annular gear casing and B and C are the heads between which the casing is mounted. The heads are provided with hubs 1, which are supported within the heads by ribs 2. Connected to the head B is an outlet pipe 3, which is provided with a stuffing box 4. A shaft 5 is journaled in the hubs 1 and in the stuffing box 4. An abutment or runner D is mounted in the casing and is provided with an annular ring 6 at the top and a similar annular ring 7 formed at the bottom thereof, which rings are partially closed forming an outlet opening 8 in the ring 6 and an inlet opening 9 in the ring 7. A curved plate 10 connects the two rings together and a curved plate 11 is connected to the body or central portion of each ring. A web 12 connects the curved plate 10 and the curved plate 11 thereby dividing the body of the casing into two chambers. A spur gear 13 is mounted on the stud shaft 14, which is mounted on the body of the ring 7. The spur gear extends up to the body of the ring 6. The vertical webbing 12 and the spur gear divide the casing into suction and outlet or discharge chambers.

The teeth of the spur gear 13 will mesh with the teeth of the annular casing A, and as the shaft 5 is connected to the body or central portion of the rings 6 and 7 the runner or abutment will be rotated upon the rotation of the shaft 5. The pump or casing being submerged in water the rotation of the abutment or runner will create a suction drawing the water into the suction chamber through the opening 9 in the base of the runner. The rotation of the runner will cause the spur gear to rotate, which will rotate in an opposite direction to the rotation of the runner, caused by the engagement of the teeth of the spur gear with the teeth of the gear casing. The water in the suction chamber will be transmitted to the outlet chamber by traveling through the meshes of the spur gear and the curved plate 11. As the water enters the outlet chamber it will be discharged through the outlet opening 8 and through the head B into the discharge pipe 3.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a rotary pump, the combination with a casing having gear teeth thereon, of an abutment mounted in the casing, a spur gear mounted on the abutment the teeth of which are adapted to mesh with the teeth on the casing, said abutment and spur gear dividing the casing into a suction and a discharge chamber, means for operating the abutment, whereby the water is drawn into the suction chamber and transmitted from the suction chamber to the discharge chamber from which it is discharged.

2. In a rotary pump, the combination with a casing having gear teeth thereon, of an abutment comprising top and bottom members, curved plates connecting the two members, a web connecting the two members, a spur gear mounted on the lower member, the teeth of the spur gear meshing with the teeth on the casing, and means for operating the abutment.

In testimony whereof I affix my signature, in the presence of two witnesses.

IRA BOYD HUMPHREYS.

Witnesses:

MAY HAYS,

CHRISTOPHER FIELD CLAY.