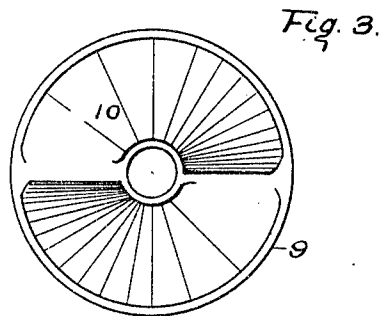
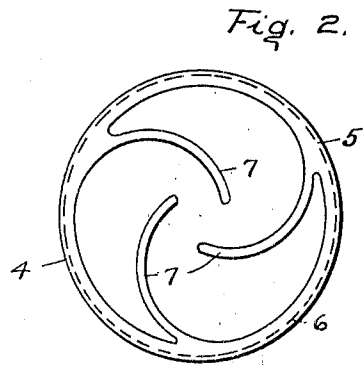
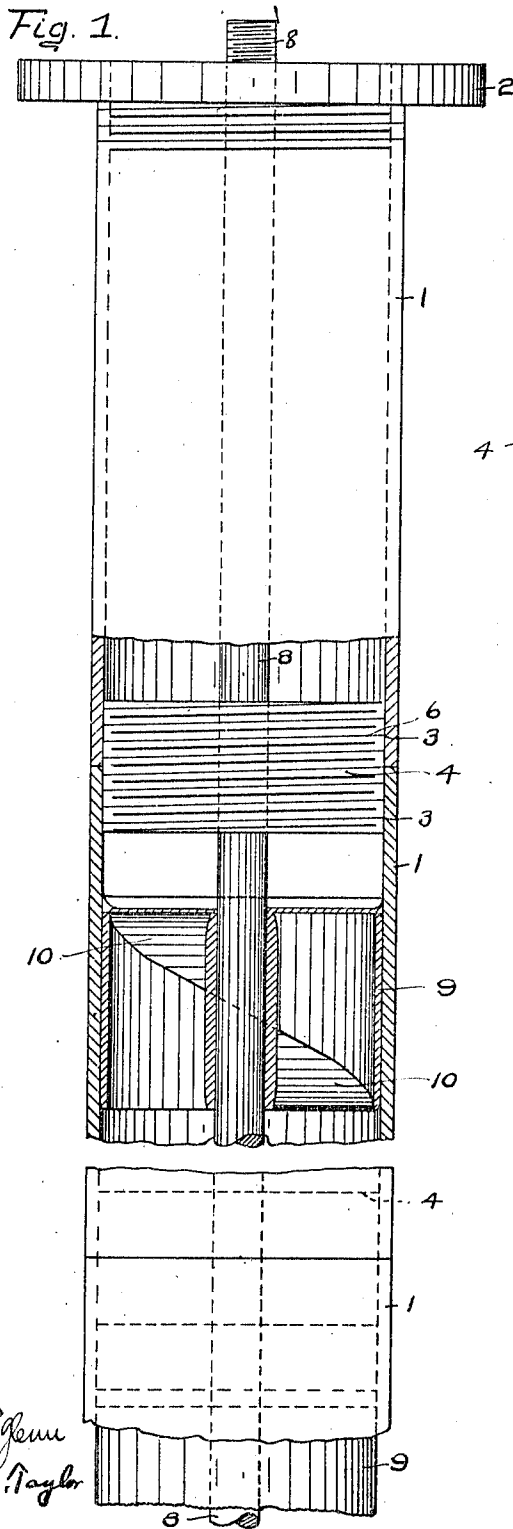


E. N. HILL.
 ROTARY PUMP.
 APPLICATION FILED MAY 13, 1911.

999,787.

Patented Aug. 8, 1911.



Witnesses
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 Frank B. Taylor

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UNITED STATES PATENT OFFICE.

ERNEST N. HILL, OF ANDERSON, INDIANA.

ROTARY PUMP.

999,787.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed May 13, 1911. Serial No. 626,916.

To all whom it may concern:

Be it known that I, ERNEST N. HILL, a citizen of the United States, residing at Anderson, in the county of Madison and State of Indiana, have invented new and useful Improvements in Rotary Pumps, of which the following is a specification.

This invention relates to improvements in rotary pumps and particularly to that class of rotary pumps known as "impeller pumps". Its object is to provide a simple, cheap and efficient means for supporting the diffusion vanes of this class of pump and to connect the casing sections together.

It consists in the novel features of construction and arrangement of parts herein-after described and illustrated in the drawing in which—

Figure 1 is an elevation, partially in section, of a rotary pump provided with my invention; Fig. 2, a plan view of the diffusion vanes and Fig. 3, a plan view of the impeller wheel.

Referring to the drawing 1, 1 are sections or stages of the casing which are adapted to be inserted into a well. The upper extremity of the upper section carries a flange 2 by which the casing is supported in the well. The opposite end of this section is provided with internal threads 3 and the extremities of each subsequent section 1 is also provided with internal threads. These threads are preferably left hand.

4 is a suitable diffusion member. It comprises an annular casing 5 which is provided with exterior threads 6 adapted to engage threads 3 on the interior of the extremities of two adjacent casing sections 1. Suitable vanes 7 are provided on the interior of casing 5 which are arranged to break up the whirling motion of the liquid which is produced by the impeller below the vanes.

A shaft 8 passes centrally through the casing sections 1 and through the diffusion members 4 and has secured to it at suitable points relative to the diffusion vanes impeller wheels 9 of suitable construction, which wheels are provided with blades 10 which, as the wheels are rotated by the rotation of the shaft, will impel the liquid which is below them upwardly with a whirl-

ing motion. The direction of rotation of the blades 10 is from right to left (Fig. 1), therefore the whirling water as it strikes the diffusion vane member above will tend to tighten that member in the two sections of the casing which it joins.

Suitable driving mechanism is connected to the upper end of shaft 8 by which the shaft is rotated, the shaft being suitably supported at its upper end.

In practice the diameter of the impeller wheels 9 is slightly less than the inner diameter of casing 1 in order to form a small clearance between the wheels and the casing, in which space a film of water may enter and remain for lubrication purposes.

It is now apparent that the casing sections as joined by my invention present a smooth outer surface to the wall of the well so that the insertion of the casing into the well is freely and easily accomplished. At the same time the inner surface of the casing is practically smooth and presents no obstruction to the free flow of the water except the desirable obstruction furnished by the diffusion vanes.

It is a very simple matter to assemble the casing sections in that adjacent ends thereof are engaged on a diffusion member thereby insuring perfect alinement and a tight connection between the same. As many sections can be secured together in this manner as may be desired. There are no bolts or rivets to rust or break and the life of the structure is thereby materially lengthened.

What I claim is:

1. In a rotary pump a sectional casing having diffusion vane members in threaded engagement with the adjacent ends of the sections.

2. In a rotary pump a sectional casing, and diffusion vane members within the same the latter having threaded engagement with adjacent ends of the sections.

In witness whereof I hereunto sign my name this 10th day of May, 1911.

ERNEST N. HILL.

Witnesses:

F. J. HILL,
P. D. SMITH.