S. D. WRIGHT.

ROTARY PUMP.

APPLICATION FILED JUNE 4, 1910.

1,031,765. Patented July 9, 1912.

Fig. 1

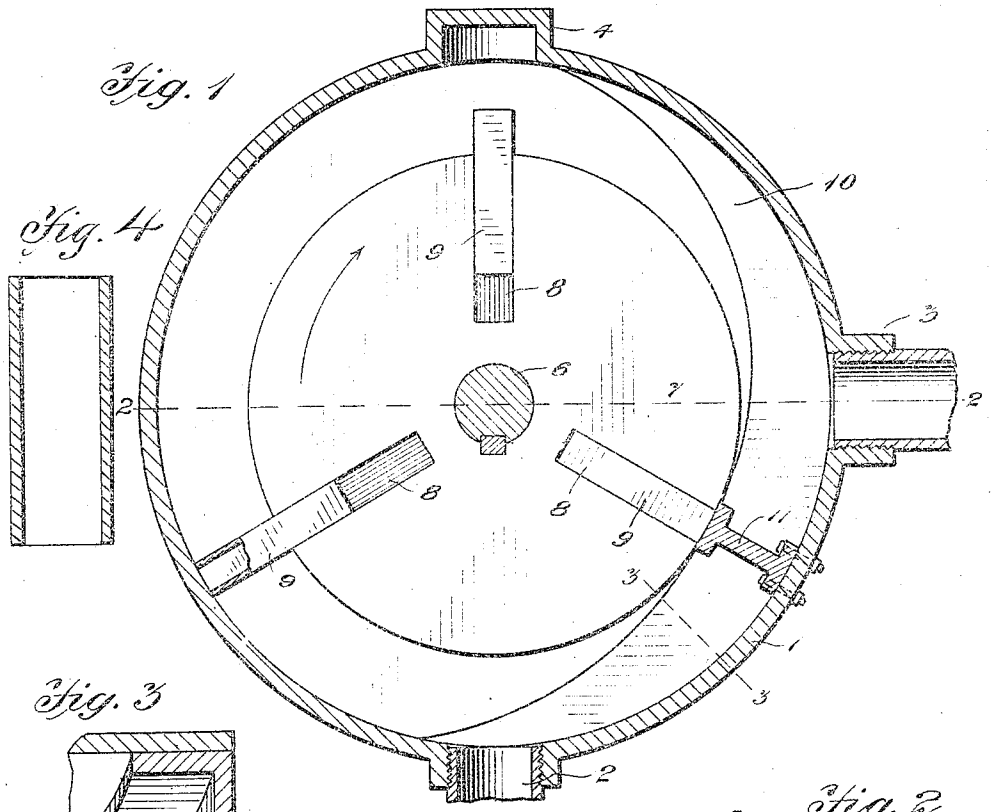


Fig. 4

Fig. 3

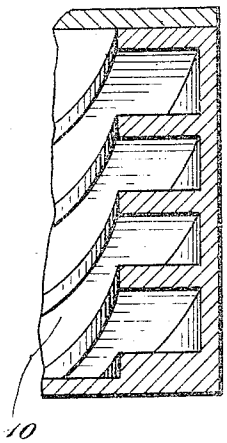
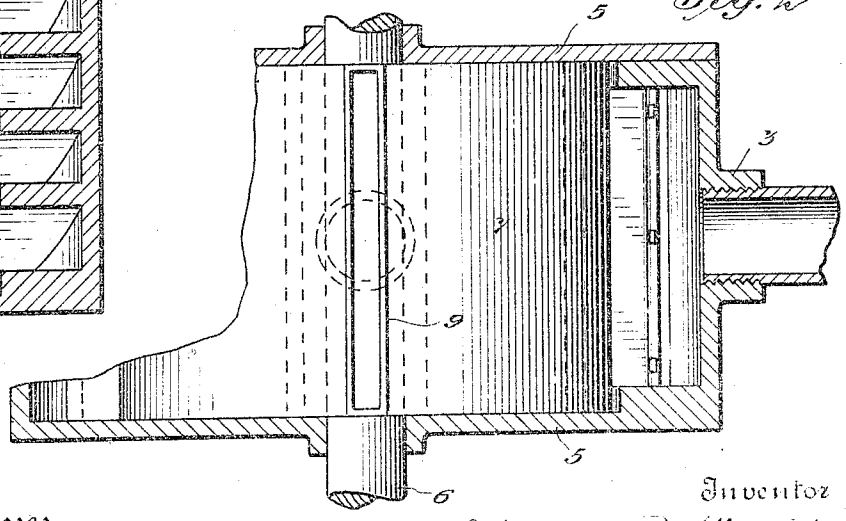


Fig. 2



Witnesses

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ROTARY PUMP.

1,031,765. Specification of Letters Patent. Patented July 9, 1912.

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To all whom it may concern:

Be it known that I, SYLVANUS D. WRIGHT, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

This invention relates to improvements in rotary pumps and the principal object in view is the construction of a simple and efficient rotary pump particularly adapted to be operated at low speed and provided with gravity controlled piston plungers for pumping water.

Another object of the invention is the construction of an improved rotary pump having a plurality of plunger members mounted in a rotary piston operating in a cylinder, which is provided with means for forcing the plungers into an inoperative position, the plungers being formed hollow so that they will not be resisted by the flow or pressure of the water in the pump.

With the above and other objects in view the invention consists in certain combinations, constructions and arrangements of parts, clearly described in the following specification and clearly illustrated in the accompanying drawings, in which,

Figure 1 is a vertical sectional view showing the construction of the rotary piston and the plunger members thereof, Fig. 2 is a sectional view taken on line 2—2 looking in the direction of the arrows, and Fig. 3 is a detail sectional view of the means for operating the plungers while they are passing through their dead path. Fig. 4 is a detail longitudinal sectional view of a plunger member.

Referring to the accompanying drawings illustrating the invention 1 denotes the cylinder which is formed with an inlet 2 and an outlet or discharge opening 3. The upper part of the cylinder is formed with an offset portion 4, which forms a relief for the pressure on the plungers in the cylinder.

On the side walls 5 of the cylinder 1 a shaft 6 is suitably journaled. On the shaft, between the side walls 5, a piston 7 is keyed. This piston is formed with three pockets or slots 8, disposed at equi-distant points in the piston, and in which slots or pockets the plunger members or movable wings 9 operate. The plunger members or movable wings are formed hollow so that fluid may readily pass therethrough in order that they can freely enter the slots or pockets in the piston and freely drop out of the pockets, as the piston is rotated with the shaft. Were these plungers solid any fluid in the slots would prevent the entry of the plunger and likewise suction would prevent it dropping therefrom. The piston is rotated in the direction of the arrow shown in Fig. 1. When the piston is in the position shown in this figure one of the wings or plunger members will be in an inoperative position on the top of the piston, one will be in a pumping or operative position on the lower part of the piston and one will be held in an inoperative position by the curved guide 10, which is located in the cylinder 1. A stop or interrupter 11 extends across the cylinder to prevent the water from flowing back or exerting a back pressure against the pumping blade or plunger member. This stop is set in slots formed in the guide 10, which is made in two parts, and may be made in one piece, as shown in Fig. 3, and which guide is formed with diagonally cut grooves so that the water may flow freely through the same, and the plunger members will not be cut with grooves. The outer surface of the guide 10 fits against the inner surface of the cylinder, while the inner surface of the guide is formed with a curve of considerably greater radius than that of the piston so that the upper and lower edges of said guide will be spaced apart from the piston, and will gradually close the plunger members in their pockets or allow them to drop out of their pockets. The plunger members or movable wings are not only formed hollow but their ends are open.

Having described my invention I claim:—

1. In a rotary pump the combination with a casing provided with inlet and outlet ports and an abutment between said ports of an impeller which consists of a rotary carrier with recesses and plungers mounted and moving in said recesses, so arranged that their free ends move to greater or less distances from the axis of rotation, said plungers having unobstructed passages extending entirely through them from end to end of sufficient caliber to permit them to move in and out of said recesses under the influence of gravity only, so as to engage the walls of the casing and pass the abutment as the carrier is rotated.

2. In a rotary pump, the combination with a casing formed with a cavity in its inner wall and with inlet and outlet ports, of an abutment between said ports, an impeller consisting of a rotary carrier having recesses therein and plungers movable in said recesses, each of said plungers having an unobstructed passage extending from one of its ends to the other end of sufficient caliber to permit it to move in and out of its recess by gravity only, so as to engage the walls of the casing and pass the abutment as the carrier is rotated, said cavity adapted to relieve the pressure upon said plunger when they reach it.

3. In a rotary pump, the combination with a casing formed with a cavity in its inner wall and with inlet and outlet ports, of an abutment between said ports, an impeller consisting of a rotary carrier having recesses therein and plungers movable in and out of said recesses by gravity only so as to engage the walls of the casing and pass the abutment as the carrier is rotated, said cavity adapted to relieve the pressure upon said plungers when they reach it.

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

SYLVANUS D. WRIGHT.

Witnesses:

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