

FIG. 1.

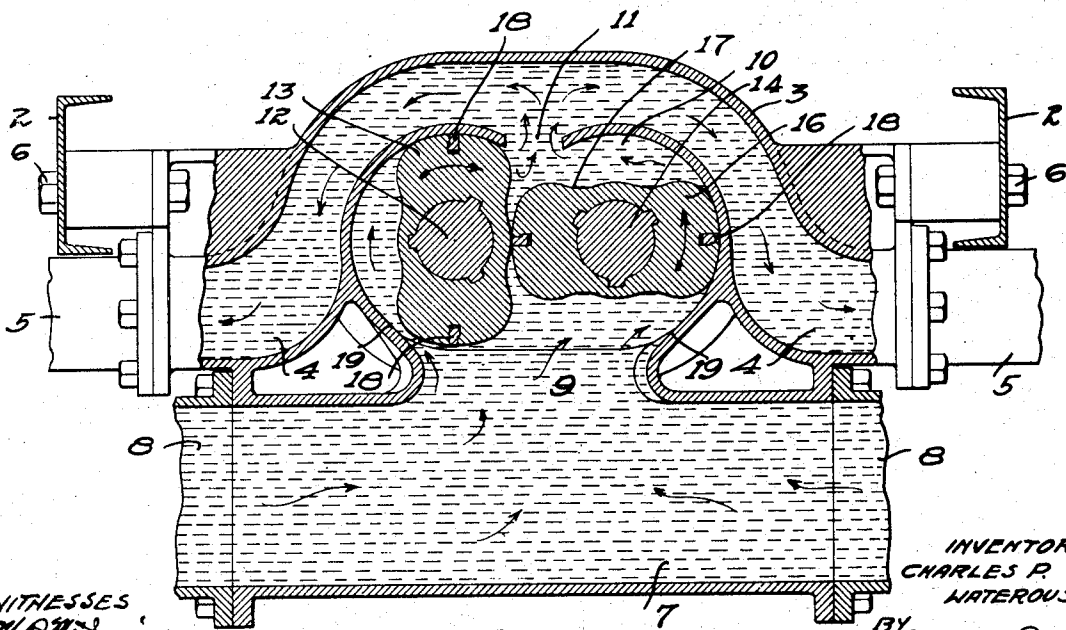


FIG. 2.

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1,361,423.

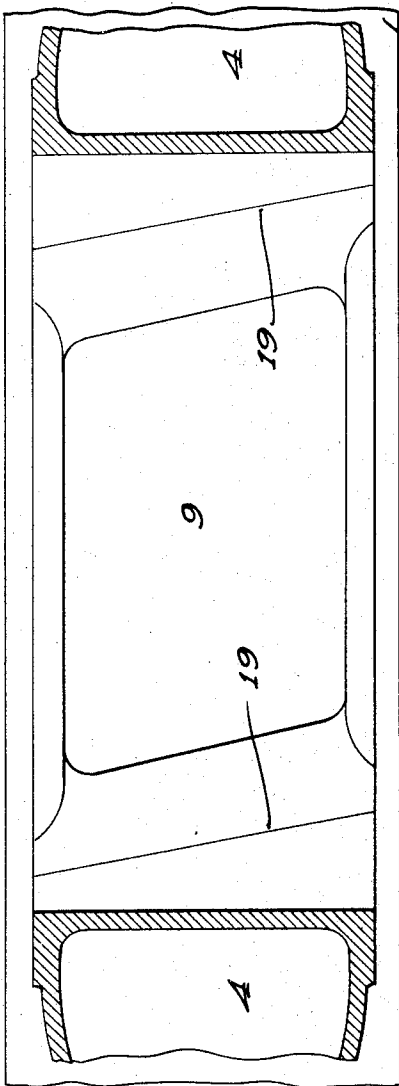


FIG. 1.

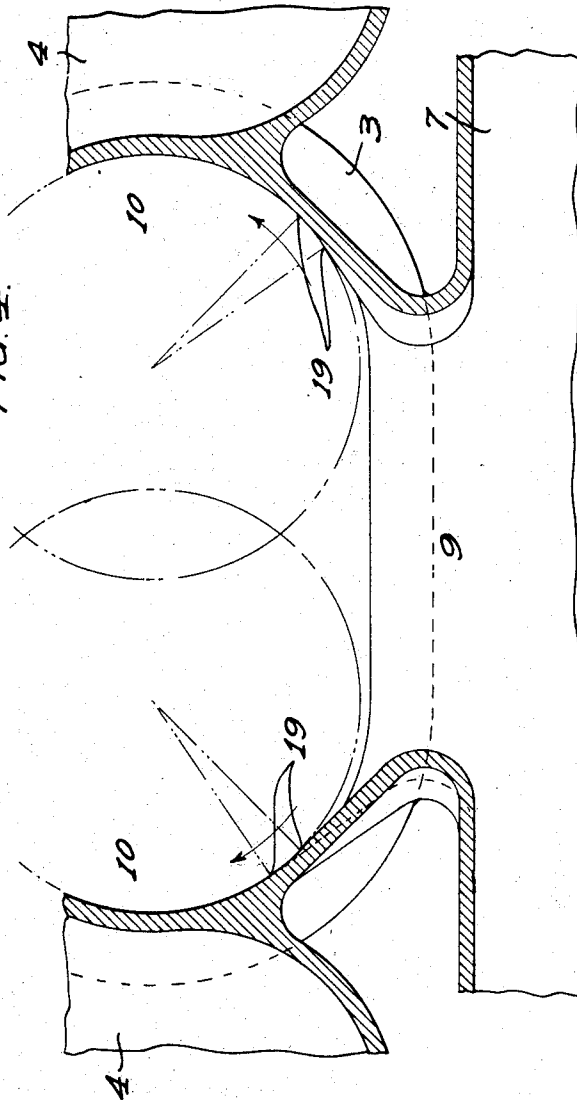


FIG. 2.

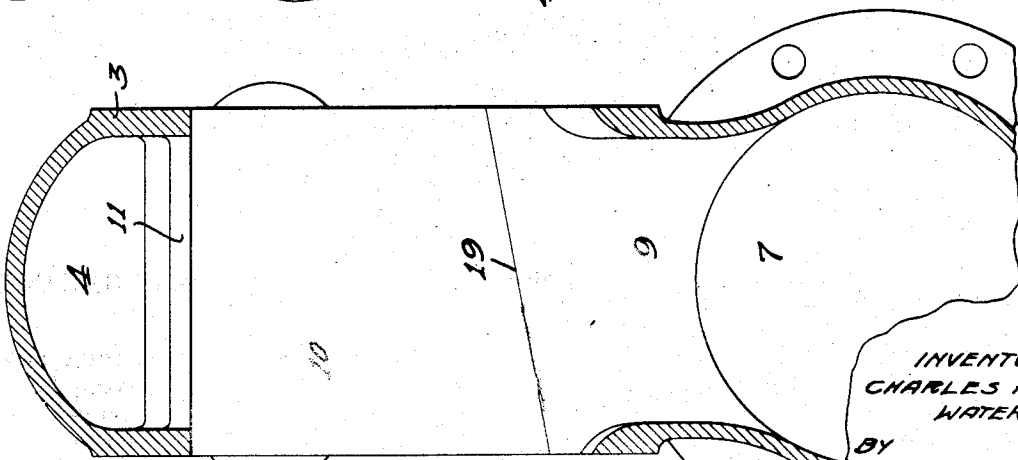


FIG. 3.

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UNITED STATES PATENT OFFICE.

CHARLES P. WATEROUS, OF ST. PAUL, MINNESOTA, ASSIGNOR TO WATEROUS ENGINE WORKS COMPANY, OF ST. PAUL, MINNESOTA, A CORPORATION OF MINNESOTA.

ROTARY PUMP.

1,361,423.

Specification of Letters Patent.

Patented Dec. 7, 1920.

Application filed April 19, 1916. Serial No. 92,264.

To all whom it may concern:

Be it known that I, CHARLES P. WATEROUS, citizen of the United States, resident of St. Paul, county of Ramsey, State of Minnesota, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

The object of my invention is to provide a pump of the rotary type capable of general use but particularly adapted for fire engine purposes.

A further object is to provide a pump of extremely simple and durable construction and one which is conveniently accessible for examination or repairs.

A further object is to provide a pump which will maintain a uniform stream of water in the hose connections.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a view, partially in section, of a rotary pump embodying my invention,

Figure 2 is a vertical sectional view of the same,

Figure 3 is a detail sectional view, showing a portion of the reservoir and piston chambers,

Figure 4 is a horizontal sectional view through the cylinder, showing the oblique arrangement of the cutoff,

Figure 5 is a transverse sectional view through the reservoir and cylinder, also showing the cutoff arrangement.

In the drawing, 2 represents the side rails of the truck frame, composed preferably of channel bar for strength and rigidity. 3 represents the casing of the pump cylinder having passages 4 formed therein communicating on each side of the truck with the hose connections 5, the cylinder being supported on the rails 2 by bolts 6. 7 is a reservoir having hydrant connections at 8 and communicating through a throat 9 with the piston chamber 10. On the opposite side of this chamber from the throat 9 is a smaller discharge opening 11 leading from the piston chamber to the passages 4. Through this opening 11 the water is forced by the pistons to the hose connections.

12 is a shaft, having a driving connection with the source of power (not shown) and on this shaft a piston 13 is secured. A shaft 14 is geared at 15 to the shaft 12 and is provided with a piston 16. The piston chamber is elliptical in form, having parallel heads, as shown in Fig. 1, while the pistons are flattened and provided with curved faces 17 and are positioned so that, as they revolve, the end of one will contact with the middle portion of the other one and close the passage between them.

The arrangement of the pistons is shown in Fig. 2, where the piston 13 is shown in contact with the upper wall of the piston chamber while a pocket is formed between it and the end wall of the chamber, which is filled with water and carried along as the piston revolves to the outlet opening. The other piston revolving in the opposite direction has moved to a point where it is lengthwise of the chamber and the water pocket is already in communication with the outlet opening, the pistons alternating in operation to balance the stroke of the pump. Suitable packing 18 is mounted in the ends of the pistons. The piston chamber has a cutoff 19 on each side of the inlet opening 9 and adjacent thereto. These cutoffs, one for each piston, are so disposed on the walls of the piston chamber that they extend obliquely to the direction of travel of the pistons and provide for a gradual cutoff and eliminate the shock or jar usually incidental to an instantaneous cutoff or one where the piston is revolved past a shoulder at right angles to the direction of travel.

I have found from actual test that the oblique arrangement of these cutoff abutments insures a smooth, non-jarring action of the pistons and greatly reduces the vibration of the pump. I regard this cutoff in connection with each piston as an important feature of the invention.

I have also found it of considerable importance to have the reservoir of water close to the passages so that a constant supply is maintained adjacent to the piston chamber.

In various ways the details of construction herein shown and described may be modified and still be within the scope of my invention.

I claim as my invention:

1. A rotary pump comprising a housing, a piston chamber formed therein having

water intake and discharge openings, the walls of said piston chamber having abutments formed obliquely thereon and operating as cutoffs in said chamber, and pistons
5 mounted to revolve in said chamber and having ends for contacting with the walls of said chamber and with said cutoffs, the diagonal arrangement of said abutments providing a gradual cutoff adjacent said in-
10 let opening.

2. A rotary pump comprising a housing having a piston chamber formed therein and provided with intake and exhaust openings,

a water reservoir communicating with said intake opening, a discharge passage communicating with said exit opening, revolving pistons mounted in said piston chamber, a reservoir communicating with said intake opening and said intake opening being of greater area than said exit opening, whereby
20 a continuous supply of water will be delivered to said pistons for discharge through said exit opening.

In witness whereof, I have hereunto set my hand this 14 day of April, 1916.

CHARLES P. WATEROUS.