W. E. PEARSON.

ROTARY PUMP.

APPLICATION FILED FEB. 17, 1910.

1,072,155.

Patented Sept. 2, 1913.

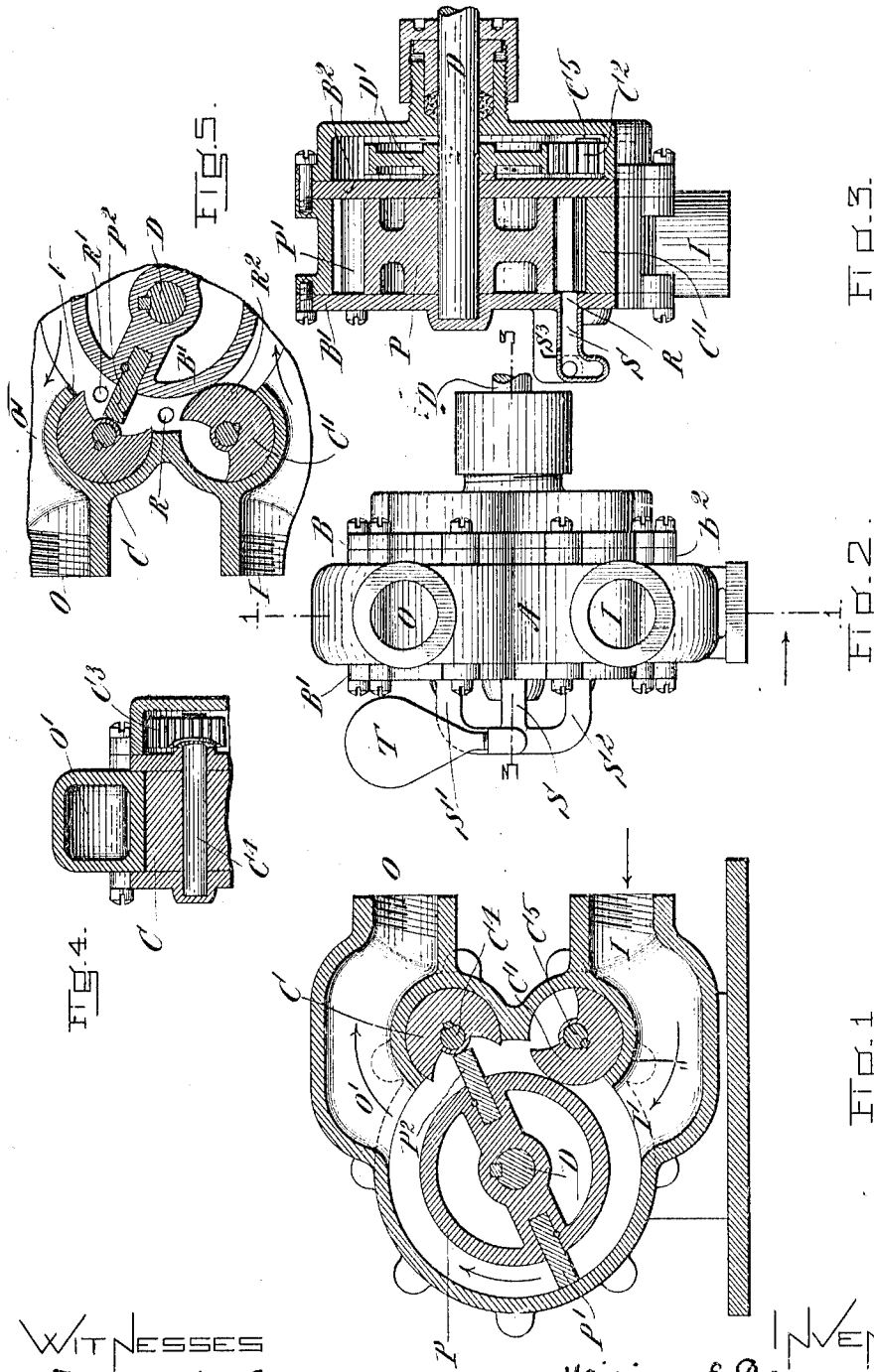


Fig. 5.

Fig. 3.

Fig. 2.

Fig. 4.

Fig. 1.

WITNESSES

Frank G. Parker.

Harry C Luce.

INVENTOR

William E. Pearson.

# UNITED STATES PATENT OFFICE.

WILLIAM E. PEARSON, OF BOSTON, MASSACHUSETTS.

## ROTARY PUMP.

1,072,155. Specification of Letters Patent. Patented Sept. 2, 1913.

Application filed February 17, 1910. Serial No. 544,492.

*To all whom it may concern:*

Be it known that I, WILLIAM E. PEARSON, a citizen of the United States, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Rotary Pumps, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention is an improvement in rotary pumps and consists in providing means for preventing resistance to its action composed of release ports in combination with its buttresses. The object is to increase the efficiency and ease of running and prevent violent shocks and strain on its running parts, which object I attain by means of the mechanism shown in the accompanying drawings, in which—

Figure 1 is a vertical section taken on line 1—1 of Fig. 2. Fig. 2 is an end elevation of the same. Fig. 3 is a horizontal section taken on line 3—3 of Fig. 2. Fig. 4 is a vertical cross-section illustrating certain details. Fig. 5 is a vertical longitudinal section to illustrate details.

This pump as shown in the drawings consists of an outside cylindrical case A having end plates B and B′ and a diaphragm plate $B^2$ that separates the piston chamber from the gear chamber, see Figs. 2 and 3.

I and I′ indicate the inlet port and O and O′ the outlet port.

The main shaft D passes through both the gear and piston chambers and has rigidly connected to it the main gear wheel, D′, and the piston carrier, P, has pistons, P′ and $P^2$, which may be packed and made adjustable in any of the approved methods. The rotating buttresses C and C′ are mounted upon shafts $C^4$ $C^5$ and are driven by the gears $C^2$ $C^3$ which in turn are driven by the gear wheel, D′, on the main shaft D.

To prevent the checking and otherwise interfering with the free passing of the pistons, when they enter the field of action of the rotating buttresses C and C′, by the locked in non-elastic fluid, that the pump may be acting upon, the following described device is introduced: Release ports R R′ $R^2$ are made in the end piece B′, see Figs. 3 and 5, of the casing; these release ports connect with by-passes S S′ and $S^2$ which all connect with each other and with the air chamber T, see Fig. 2. The arrangement of ports, by-passes and the air tank makes practically impossible any locking in and consequent trouble from confined non-compressible fluid between the pistons and the buttresses. The action of clearance may be explained as follows: We suppose the piston $P^2$ Fig. 5, is approaching the closing point V; now when that point is reached the fluid would be locked in between the piston $P^2$ (supposed to be at V) and the buttress C′, but the release ports R′ and R being open there will be no locking in of the fluid. As the piston passes to the place which it occupies in Fig. 5, then the release port, R, will be open, and as the piston advances the rotation of the buttress C′ will have uncovered the release port (in dotted lines) $R^2$ and thus prevent any tendency to locking and compressing at this point.

Claims:

A rotary pump, comprising a casing having inlet and outlet ports, a rotating piston carrier, pistons mounted on the carrier, rotating buttresses and means for operating them, release ports located between the inlet and outlet ports, by-passes connecting said release ports to each other, and an air chamber connected to said by-passes, substantially as and for the purpose set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, on this 16th day of February, A. D. 1910.

WILLIAM E. PEARSON.

Witnesses:
FRANK G. PARKER,
FRANKLIN W. HAYDEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."