Aug. 22, 1950 R. C. FORD 2,519,642

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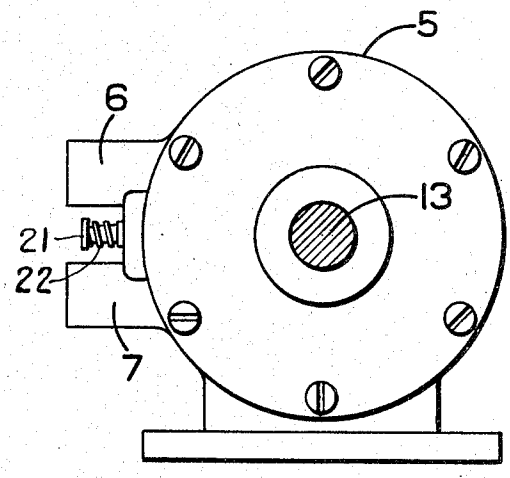


FIG. 1.

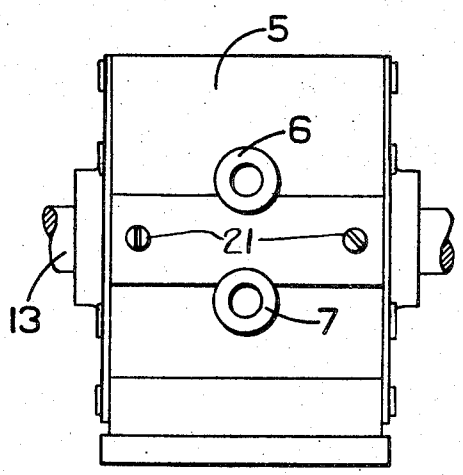


FIG. 2.

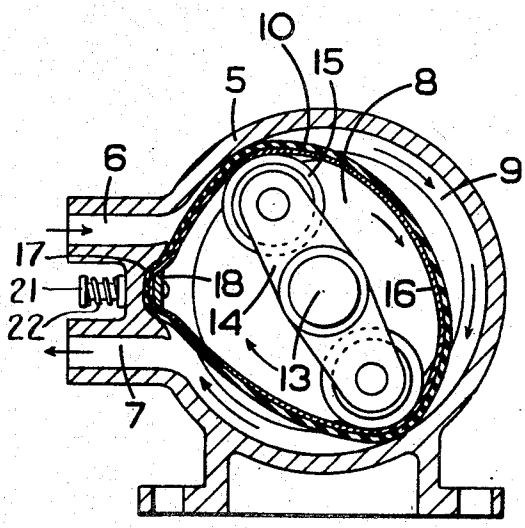


FIG. 3.

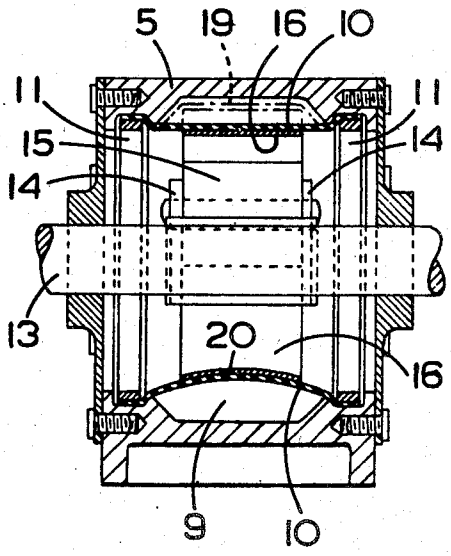


FIG. 4.

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UNITED STATES PATENT OFFICE

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2 Claims. (Cl. 103—149)

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This invention comprises improvements in connection with fluid pumps, the object of which is to provide a pump of a new or improved type which is distinguished from pumps of the more orthodox kinds in that the need for valves and stuffing boxes and glands is entirely dispensed with, and in that whilst being of an extremely simple and inexpensive construction, is very efficient and can be run continuously for long periods of time with little or no attention.

Referring to the drawings—

Figure 1 is a side elevation of a pump according to this invention.

Figure 2 is an end elevation.

Figure 3 is a sectional side view to reveal the interior mechanism, and

Figure 4 is a sectional end view.

In carrying the present invention into practice as shown upon the accompanying drawings of which a preferred example is shown, the pump comprises a stationary rigid hollow cylindrical casing 5 having inlet and outlet ports 6, 7, the bore 8 of which is recessed at 9. A hollow cylindrical flexible member 10 is secured at its ends in a fluid-tight manner within the casing 5 by means of the securing rings 11, the diameter of said flexible member 10 being such as to leave an annular chamber between the recess 9 and the bore 8 of the casing 5.

The driving shaft 13 mounted in suitable bearings has secured thereto the arms 14 at each end of which is pivotally mounted the rollers 15 which are adapted to press the flexible member 10 into the recess 9 in the bore 8 of the casing 5, with a rolling contact.

That part of the flexible member 10 against which the rollers 15 make rolling contact may be protected from wear by means of the spring steel track 16 which is bonded to the flexible member 10.

The annular chamber 9 is closed between the inlet and outlet ports 6, 7 by clamping the flexible member 10 in a resilient or yielding manner in the recess 17 by means of the resiliently mounted bar 18, transversely to the bore 8 of the casing 5 which is held in position by the bolts 21 which are slidably mounted in the casing 5, with springs 22 positioned under the heads of said bolts 21 to normally retain the resiliently mounted bar 18 in the recess 17 as shown in Figure 3 so that when the delivery pressure exceeds a predetermined value, some of the fluid is by-passed to the inlet end of the annular chamber 9. At each side of the transverse recess 17 the inlet and delivery ports 6, 7 communicate with the recess 9 at each side respectively of the resilient closure member.

In operation the driving shaft 13 is rotated, which rotates with it the arms 14, which movement forces the resilient member 10 into contact at two points with the recess 9, which when the rollers 15 pass the inlet port 6, sets up suction

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causing liquid to be drawn into the recess 9 until such time the second roller 15 at the opposite end of the arms passes the recess 17, when the operation is again repeated but the liquid then in front of the first roller 15 is forced out of the outlet port 7.

Referring to Figure 4 the position of the flexible member 10 when forced into the annular chamber 9 is indicated at 19 and shown fully distended at 20.

I claim:

1. A fluid pump, comprising in combination a body part, an annular channel portion formed in said body part, inlet and outlet ports communicating with said annular channel portion, a resilient member disposed across said channel to form an annular chamber, having a resiliently mounted member to form an obstruction between the inlet and outlet ports, to permit of the passage of liquid in the event of the pressure of fluid rising above a predetermined level, and a rotary member which is adapted to force the resilient member into the channel portion to cause a fluid to enter the chamber by suction at the inlet port and to be expelled therefrom by virtue of the liquid being forced in front of the rolling member to the outlet port.

2. A fluid pump comprising in combination a body part, an annular channel formed in said body part, inlet and outlet ports communicating with said annular channel, a resilient member disposed across said channel to form an annular chamber, a resiliently mounted member in said chamber forming an obstruction between said ports, said obstruction being resiliently yieldable to permit of the passage of fluid between said ports in the event of the fluid pressure rising above a predetermined level, a flexible track member secured to said resilient member, and a rotary member disposed to contact said track member during rotation so as to force same and the resilient member into the channel portion to cause a fluid to enter the chamber by suction at the inlet port and to be expelled therefrom by virtue of the fluid being forced in front of the rotary member to the outlet port.

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