July 8, 1930. A. J. MEYER 1,770,141

PUMP

Filed May 31, 1927

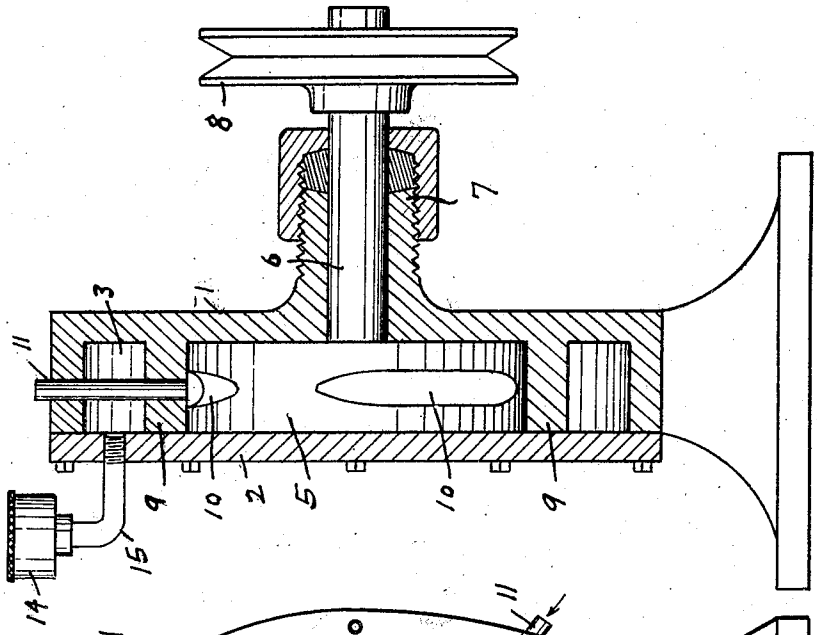

Fig. 2.

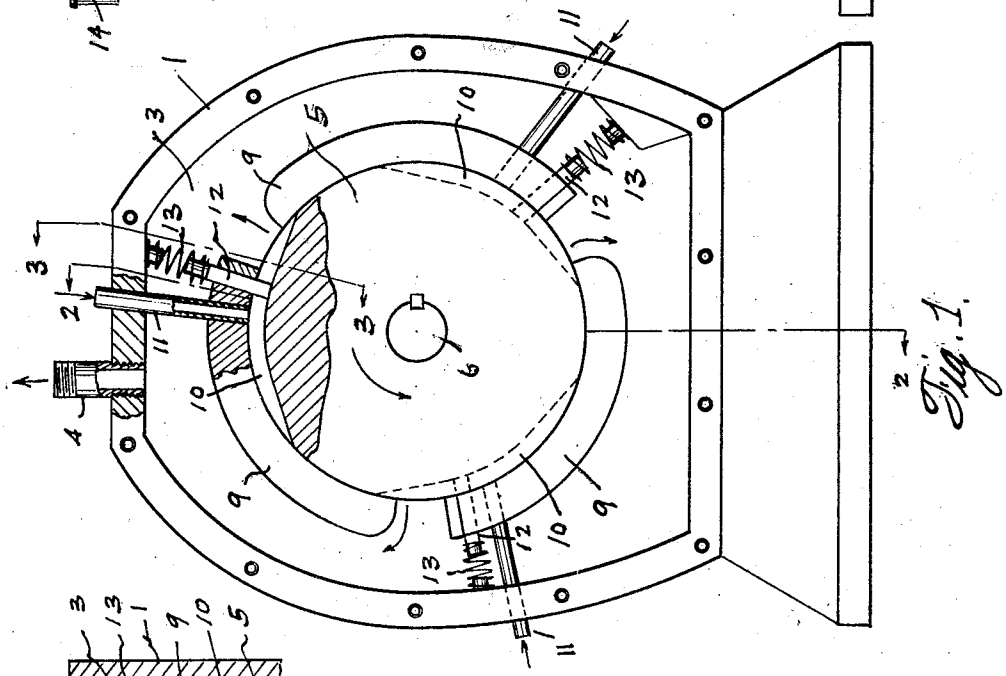

Fig. 1.

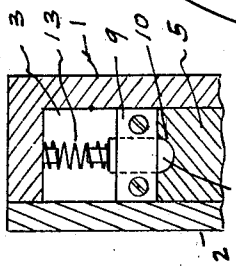

Fig. 3.

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UNITED STATES PATENT OFFICE

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PUMP

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This invention relates to new and useful improvements in a pump.

One object of the invention is to produce a pump of the character described specially designed for pumping air, or other fluids, and which is composed of few coacting parts and is consequently subject to a minimum of friction and wear.

Another object of the invention is to provide a pump of the character described which is of very simple construction, may be cheaply produced, and readily kept in repair.

With the above and other objects in view this invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings, wherein:—

Figure 1 shows a side elevation of the pump, shown partly in section.

Figure 2 shows a cross sectional view thereof taken on the line 2—2 of Figure 1, and

Figure 3 shows a fragmentary cross sectional view taken on the line 3—3 of Figure 1.

Referring now more particularly to the drawings, wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 designates a pump casing, as a whole, which may be of any desired contour and which includes a removable end plate 2. The casing encloses a pressure chamber 3, leading out from which is a discharge line 4.

Rotatable within the casing there is a rotor 5, preferably circular in form, which is fixed to a drive shaft 6, which is rotatable in a stuffing box 7, carried by the end of the casing. Fixed on the outer end of the shaft there is a driving pulley 8 through which the shaft may be driven.

Fixed within the casing there is one, or more, stators 9 which preferably span the chamber 3 and are spaced apart and whose faces confronting the rotor 5 are arcuate and fit closely against the cooperating faces of said rotor. The periphery of the rotor has a plurality of arcuate pockets 10, preferably one for each stator. There is an intake pipe 11 whose inner end is anchored to, and extends through each stator 9 and its outer end extends through the casing 1 and is anchored thereto.

Slidably mounted in a radial bearing at the forward end of each stator 9 there is a plunger 12 whose outer end is seated against a yieldable seat, as 13. The pockets 10 are aligned with said plungers and as the rotor turns the inner ends of the plungers ride in the respective pockets, successively.

As the rotor turns each advancing pocket 10 will be blocked or closed, by its corresponding plunger 12, thus forming an enclosed chamber, or trap, in front of said plunger with which the corresponding intake pipe 11 connects and air, or other fluid to be pumped will be drawn into said pocket, or chamber and carried around with the rotor and discharged into the chamber 3 past the rear end of the corresponding stator 9. The fluid thus being constantly drawn in through the intake pipes 11 and discharged into the chamber 3 will create pressure in said chamber which will force the fluid out through the discharge line 4.

The pipes 11, may, if desired, be connected into a common intake line which in turn may be communicated with the fluid to be pumped.

If desired the direction of the rotation of the rotor may be reversed and in such case the fluid in the chamber 3 will be successively trapped in the pockets 10 and discharged out through the lines 11. In such case the line 4 will serve as an intake line. In case oil is being pumped no provision for lubricating the pump will be necessary but in other cases an oil cup 14 may be provided with a feed line 15 which is tapped through the end plate 2 and feeds oil onto the inner face thereof and this oil will gradually find its way to the working parts of the pump.

While I have shown and described only one form of the pump it is to be understood that the embodiment, as shown and described is only for illustrative purposes and various mechanical changes may be made and equivalents substituted for the parts shown with-

out departing from the principle of the invention.

What I claim is:—

1. A pump including a casing having a pressure chamber therein provided with a discharge opening, a rotor within the casing, a driving shaft, on which the rotor is fixed, a plurality of stators spaced apart and disposed around the rotor and fitting closely there against, the periphery of said rotor having elongated circumferential pockets, an intake pipe for each stator, the inner end of said pipe being anchored to and extending through its corresponding stator, and the outer end of each pipe extending out through the casing, each stator also having a radial bearing, a yieldably mounted plunger in each bearing whose inner ends are aligned with and adapted to fit closely into said pockets successively as the rotor turns.

2. A pump including a casing having a pressure chamber inclosed therein provided with a discharge opening, an axial shaft in the casing, a rotor fixed on said shaft and located within said chamber, a plurality of stators spaced apart and fixed to the casing and spanning said chamber, said rotor having a circular periphery which rides closely against the inner sides of said stators and which is provided with oblong pockets, a plurality of intake pipes whose inner ends are anchored to and extend through the respective stators and whose outer ends extend out beyond the casing, a yieldably mounted plunger working through each stator, the inner ends of such plungers being aligned with said pockets and being formed to fit closely therein successively as the rotor turns.

In testimony whereof I have signed my name to this specification.

ALBERT J. MEYER.