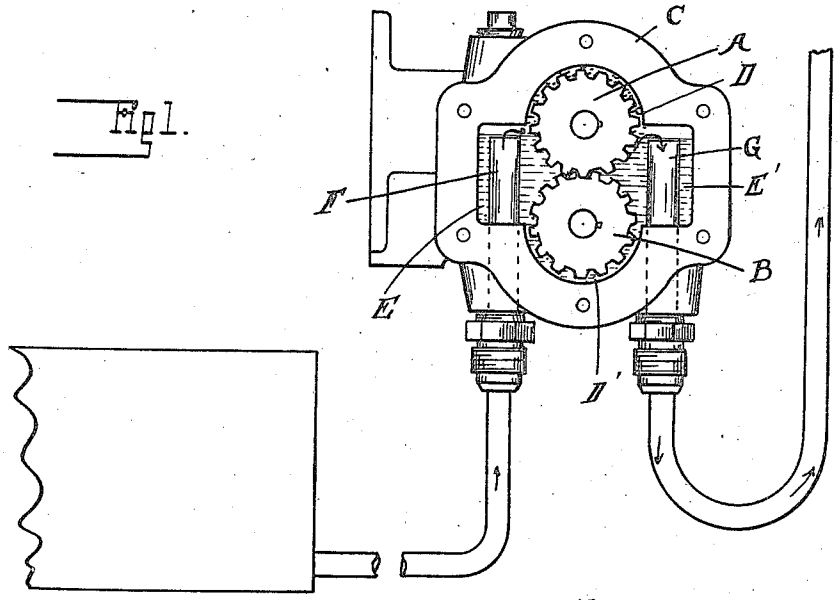
G. W. DUNHAM.

GEAR PUMP.

APPLICATION FILED OCT. 16, 1914.

1,161,037. Patented Nov. 23, 1915.

Fig. 1.



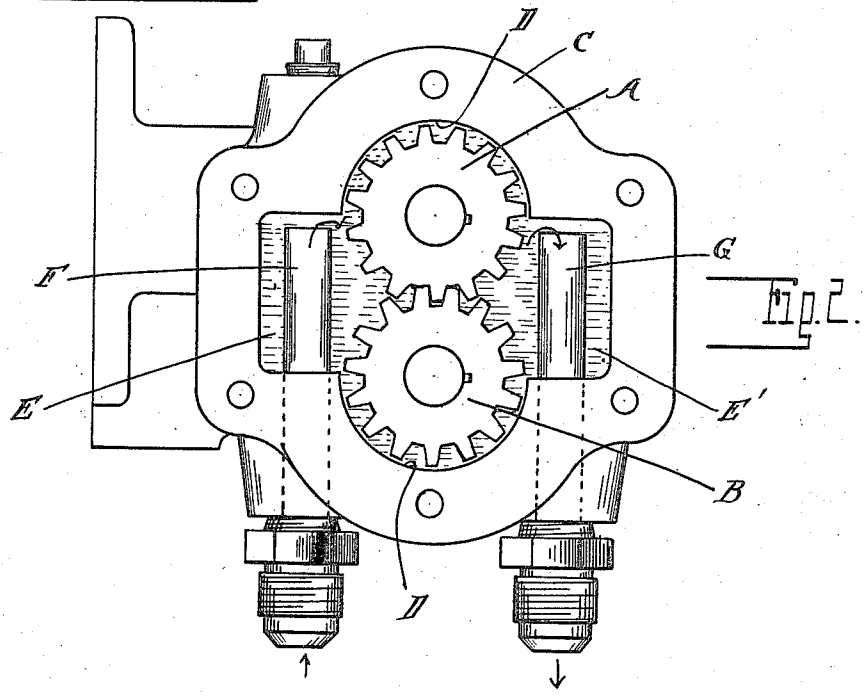


Fig. 2.

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GEAR-PUMP.

1,161,037. Specification of Letters Patent. Patented Nov. 23, 1915.

Application filed October 16, 1914. Serial No. 866,955.

To all whom it may concern:

Be it known that I, GEORGE W. DUNHAM, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Gear-Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to rotary pumps, and it is the object of the invention to obtain a construction which will operate without priming and which may be arranged above the level of the tank or receptacle from which the liquid is drawn.

More particularly it is an object to obtain a construction which may be used in a lubricating system for engines or other mechanism and which is operative in any position of attachment.

In the drawings: Figure 1 is a diagram showing my lubricating system with my improved pump therein; and Fig. 2 is an elevation of the pump with the front plate removed.

As shown, the rotary pump is of the intermeshing gear type, in which A and B are two intermeshing gears, and C is a casing recessed to receive said gears. This casing has segmental walls D and D′ arranged close to the periphery of the gear wheels and preferably extending substantially half the circumference thereof. At opposite sides of the wheels the recess is enlarged to form chambers E and E′ connected respectively to the inlet and outlet conduits for the pump.

With the construction as thus far described, when the pump is arranged below the level of the receptacle from which the liquid is drawn, the inlet chamber E will be filled with liquid, which will fill the clearance spaces between the teeth of the gears so as to seal or prime the pump. On the other hand, if the pump is arranged above the level of the tank the liquid will not initially fill the chamber E and therefore will not prime or seal the pump. Inasmuch as the clearances are too large for the pump to propel air it cannot be started until liquid is introduced for priming.

With my improved construction I have avoided the difficulty above noted by so arranging the inlet and outlet connections to the chambers E and E′ that a quantity of liquid will always be trapped therein and seal the clearances. As specifically shown, the inlet tube F and the outlet tube G extend through the bottom of the casing C and upward respectively in the chambers E and E′ to a point near the top thereof. This will prevent the draining of the liquid out from either of the chambers and will maintain at all times a sufficient quantity to seal the pump. In operation, the liquid in the chamber E will be carried around in the pockets between the gear teeth and the segmental walls D and D′ to the chamber E′, and this will create a partial vacuum in the chamber E and the lifting of the liquid by atmospheric pressure. Even where the supply of liquid is exhausted the pump cannot completely drain the chambers E and E′, as there will always remain a volume of liquid substantially equal to the capacity of one of the chambers, which will be sufficient to seal the pump for further operation. Consequently the pump will always be operative and can be arranged at any convenient point in the system without regard to the level of the liquid supply.

What I claim as my invention is:—

1. A gear pump, comprising intermeshing gears, a casing recessed to receive the same and to form separate inlet and outlet chambers on opposite sides thereof, and inlet and outlet conduits extending into said chambers to trap a quantity of liquid therein to seal one of said gears.

2. A gear pump, comprising intermeshing gears, a casing surrounding the same and forming inlet and outlet chambers on opposite sides thereof, and inlet and outlet conduits extending upward through the bottom of said chambers to a point adjacent to the top thereof to trap a quantity of liquid therein to seal one of said gears.

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

GEORGE W. DUNHAM.

Witnesses:

C. E. GREGORY,

JAMES P. BARRY.