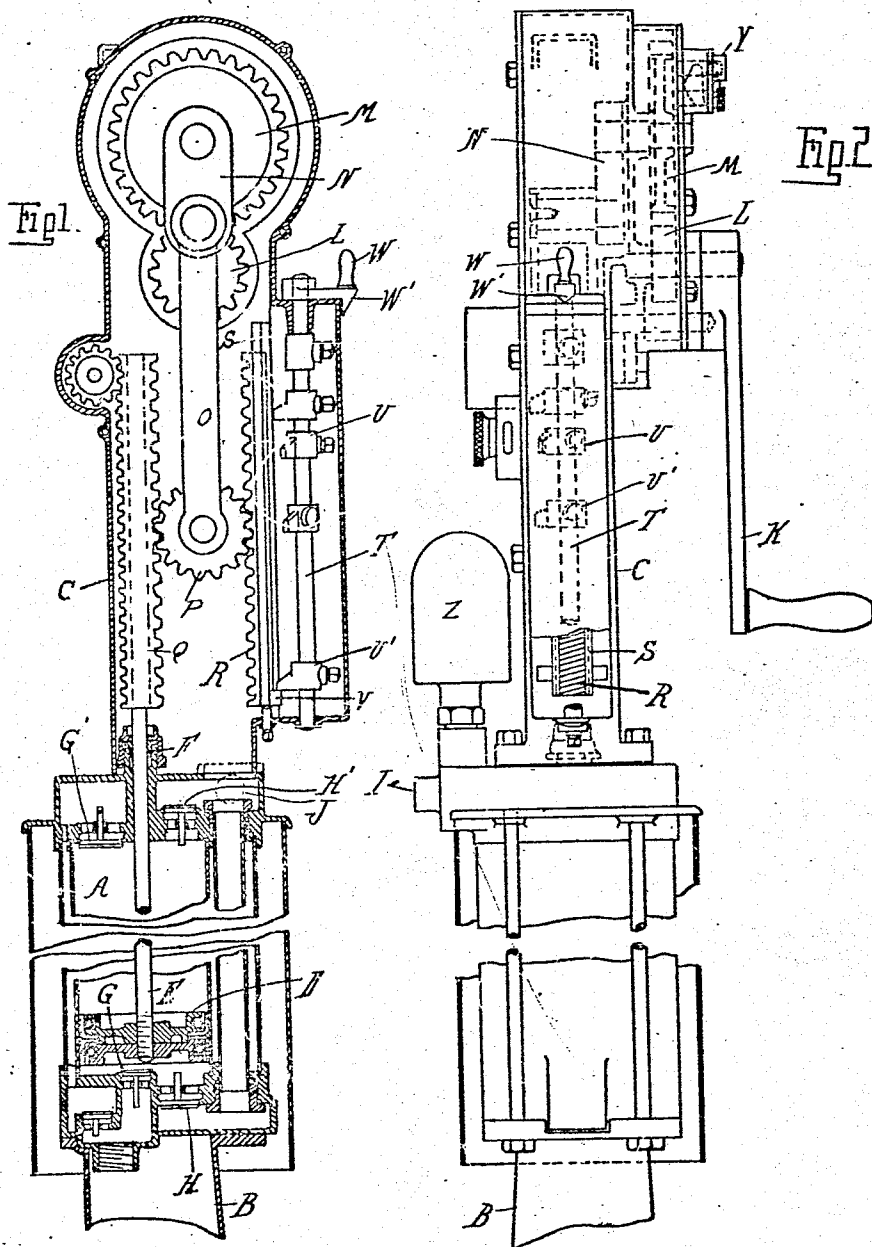


R. F. DISERENS.
MEASURING LIQUID PUMP.
APPLICATION FILED DEC. 28, 1910.

1,009,725.

Patented Nov. 28, 1911.



Witnesses
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UNITED STATES PATENT OFFICE.

RALPH F. DISERENS, OF FORT WAYNE, INDIANA, ASSIGNOR TO WAYNE OIL TANK AND PUMP COMPANY, OF FORT WAYNE, INDIANA, A CORPORATION OF INDIANA.

MEASURING LIQUID-PUMP.

1,009,725.

Specification of Letters Patent.

Patented Nov. 28, 1911.

Application filed December 28, 1910. Serial No. 599,719.

To all whom it may concern:

Be it known that I, RALPH F. DISERENS, a citizen of the United States of America, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Measuring Liquid-Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to pumps particularly designed for dispensing liquids such as gasoline and other hydrocarbon oils, and it is the object of the invention to provide means for pumping variable accurately measured quantities of the liquid.

To this end the invention consists in the construction as hereinafter set forth.

In the drawings.—Figure 1 is a vertical central section through the pump and its operating mechanism and Fig. 2 is a side elevation thereof.

A is the pump barrel or cylinder which is mounted upon a suitable standard B, and C is a frame extending upward from the barrel A and containing operating mechanism.

D is a piston in the cylinder, and E is the plunger rod which passes out from the upper end of the cylinder through a suitable packing gland F.

The pump is double acting and to this end is provided at its lower end with a suction valve G and discharge valve H, and at its upper end is also provided with a suction valve G' and discharge valve H'. The ports of these valves communicate with common suction and discharge passages I and J, the latter being connected with the discharge conduit (not shown).

For operating the pump to discharge accurately measured quantities of oil, varying in volume, an operating mechanism for the plunger is provided of the following construction: K is an operating lever preferably in the form of a crank which is adapted to make one complete revolution for each time that it is actuated. Between this crank and the plunger of the pump is a variable gear train by which the same movement of the actuating crank will upon suitable adjustment, cause variable length strokes of the plunger. As shown, this mechanism comprises the intermeshing gear wheels L and M which connect the crank K with the crank N, the ratio of said gears being one

to two, thereby causing a half revolution of the crank N for one complete revolution of the crank K. O is a pitman rod connected with the crank N and carrying at its lower end a pinion P which is in mesh with the oppositely arranged parallel rack bars Q and R. The rack bar Q is attached to the plunger or piston rod E, while the rack bar R is slidably secured in guides S permitting a movement double the throw of the crank N. Adjacent to the rack bar R is arranged a rod T having a series of stops U, U', etc., thereon which by a suitable rotation of the rod T will be alternatively moved into the path of a lug V on the rack bar R. Thus movement of this rack bar R is variably limited according to which of the stops U or U' is in the path of the lug V, and where the lowermost stop U is in this position, said rack bar is held from any movement.

With the construction as just described, it will be understood that when the rack bar R is free to slide upon its guide S the rotation of the crank and consequent lifting of the pitman and pinion P will produce no other effect than the lifting of said rack bar R. During this movement the pinion P will rotate and travel along the rack bar Q without imparting movement thereto for the reason that the resistance of the plunger is much greater than the resistance to the movement of the rack bar R. When however, the movement of the rack bar R is resisted by contact of the lug V with one of the stops U, U', a further movement of the crank and pitman will cause the lifting of the rack bar Q, while the pinion P travels along the rack bar R. The amount of movement imparted to the rack bar Q will be proportional to the movement of the crank after the rack bar R is held stationary, and thus by varying the position of the stops U, U' or the particular stop that is in the path of the lug V, any predetermined stroke of the piston may be obtained. I preferably provide the rod T with the actuating handle W, and the index W' which will designate the particular stop that is thrown into the path of the lug V. If the whole stroke of the piston will displace a particular unit of measurement as for instance a gallon, then the partial strokes obtained by the different stops which permit a variable movement of the rack bar R will displace fractional portions of a gallon, as quarts, pints, half pints, 110

etc. In each instance the same movement is given to the actuating crank handle K and by the arrangement of a suitable stop such as Y the movement of this crank may be limited to an exact revolution.

Where a number of quarts or gallons are to be withdrawn this may be accomplished by a practically continuous operation it being merely necessary for the operator to count the number of revolutions of the crank or to observe the indicator where one is employed. This continuous operation is due to the fact that the pump is double acting, and where the piston travels its full stroke a continuous flow of liquid will be produced. If on the other hand adjustment is made for a smaller unit of volume, as a pint or quart, there will be an intermittent action of the piston due to the lost motion in the transmission mechanism, but by providing an air chamber Z, a practically continuous flow of the liquid from the discharge nozzle is obtained.

What I claim as my invention is:

1. In a liquid dispensing device, the combination with a liquid displacement means, of an actuating member, a transmission between said actuating member and liquid displacement means including two alternatively movable members, one of which is connected with said displacement means, and means for variably limiting the movement of the other of said alternatively movable members.

2. In a liquid dispensing device, the combination with a liquid displacement member, of a rack bar connected to said displacement member, a pinion meshing with said rack bar, an opposed rack bar, an adjustable stop for limiting movement of said opposed rack bar, and a movable member on which said pinion is mounted.

3. In a liquid dispensing device, the combination with liquid displacement means, and an actuating member therefor, of a variable transmission therebetween comprising a pair of rack bars and an intermediate pinion, one of said members being

connected to the displacement means, another to the actuating member, and means for variably limiting the movement of the third member.

4. In a liquid dispensing device, the combination with liquid displacement means, of an actuating crank therefor, and a variable transmission between said crank and displacement means comprising a pitman, a pinion mounted thereon, a pair of rack bars engaging said pinion, one of which is connected with said displacement means, a guide for the other rack bar, and a series of stops for alternative engagement with said rack bar to variably limit the movement thereof.

5. In a liquid dispensing device, the combination with a cylinder, of a piston therein, a rack bar attached to said piston, a second rack bar, a pinion engaging said rack bar, a pitman on which said pinion is mounted, a crank for actuating said pitman, an operating crank, a gearing between said operating crank and pitman actuating crank, a rotatable rod parallel to the second of said rack bars, a series of stops on said rotatable rod in angular relation to each other and adapted to alternatively engage with said rack bar, and adjusting means for rotating said rod.

6. In a liquid dispensing device, the combination with a liquid displacement means, of an actuating member, and a transmission between said actuating member and liquid displacement means including two members arranged for independent movement, and means continuously in engagement with one of the members for operatively connecting the latter at a predetermined point in the travel of one to actuate one member from the other.

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

RALPH F. DISERENS.

Witnesses:

C. O. GRIFFIN,
F. P. HAVEN.