

No. 857,221.

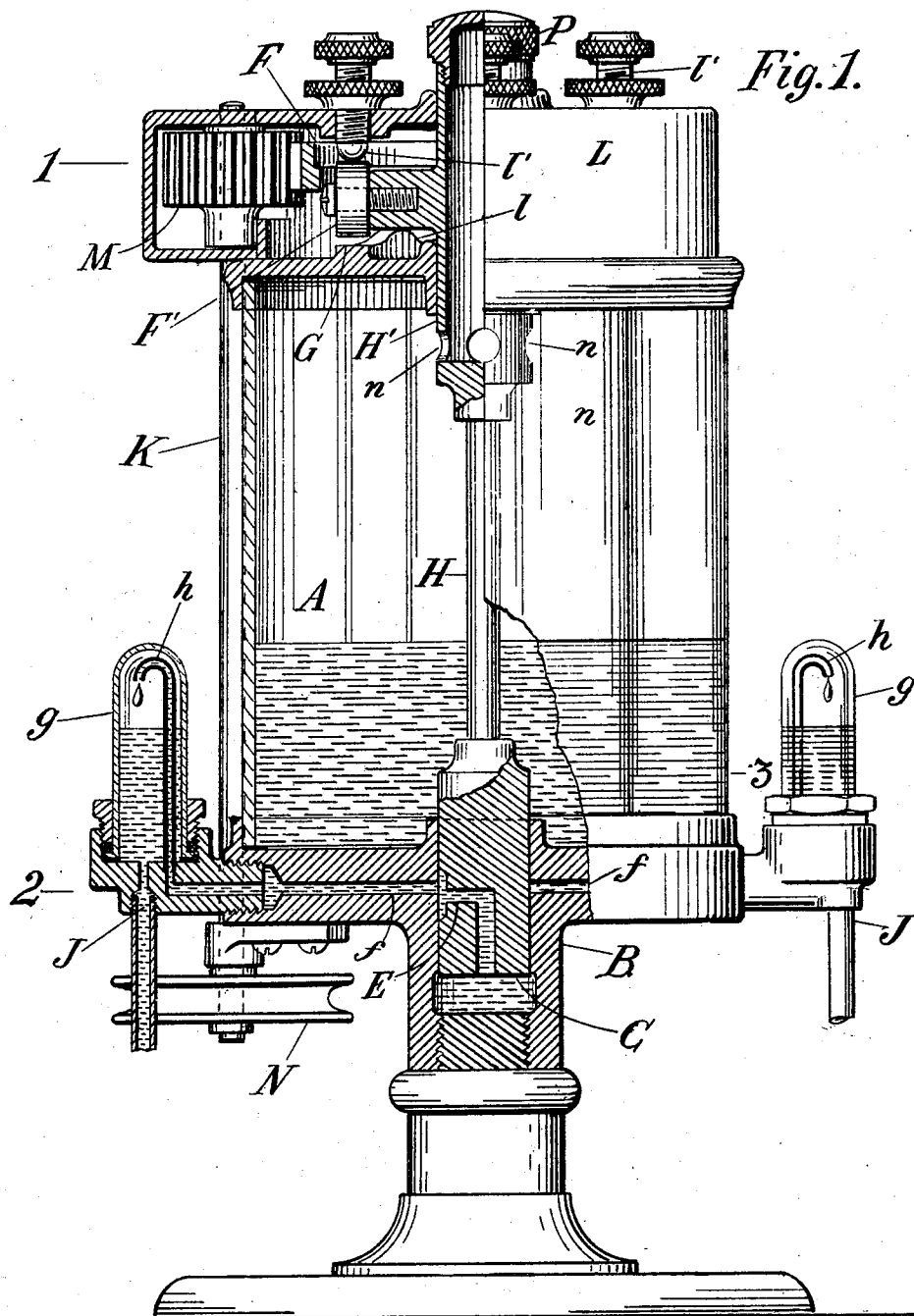
PATENTED JUNE 18, 1907.

C. A. ANDERSON & E. A. ERICKSON.

MULTIPLE FEED LUBRICATOR.

APPLICATION FILED OCT. 13, 1904. RENEWED MAR. 11, 1907.

3 SHEETS—SHEET 1.



Witnesses:
Henry Clay Clark
Mary F. Lincoln

Inventor s.
Charles A. Anderson
Erick A. Erickson.

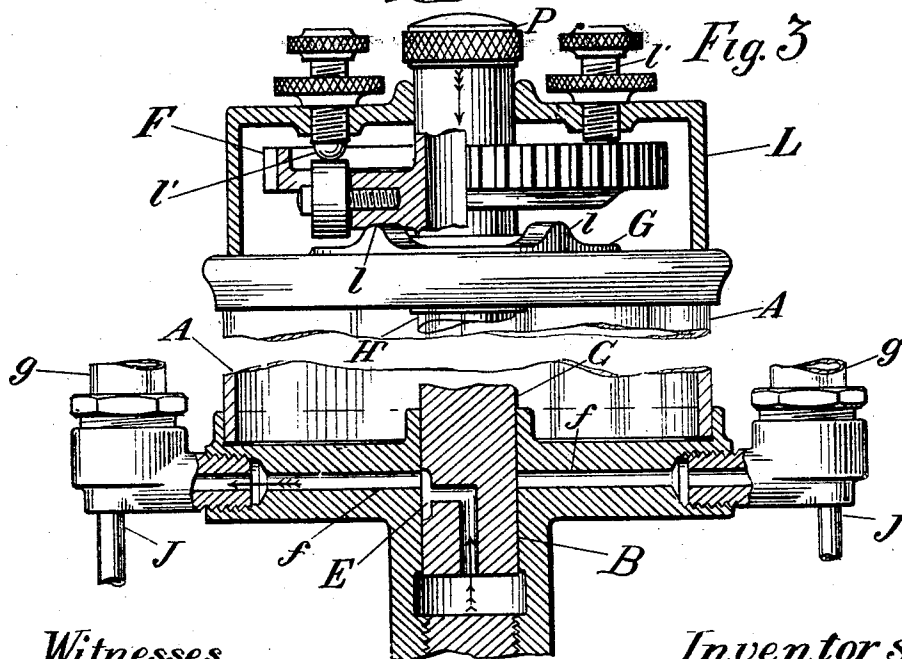
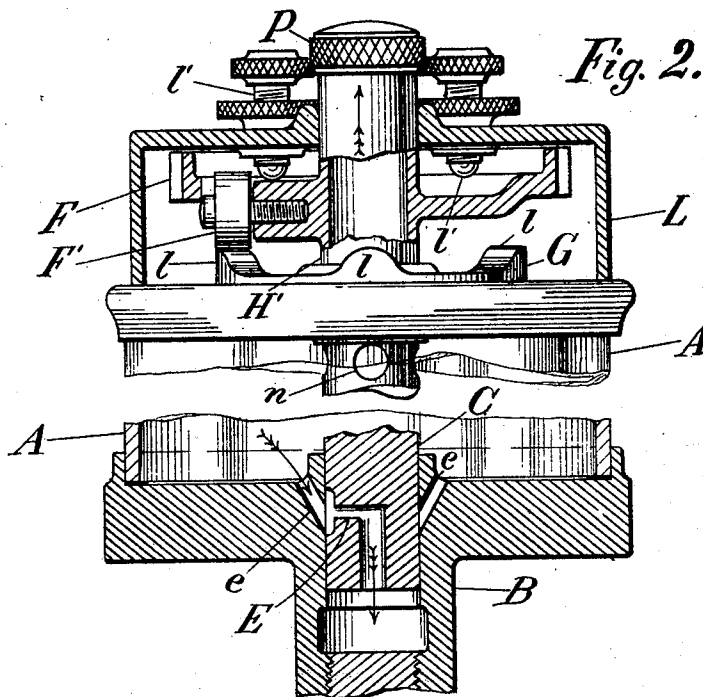
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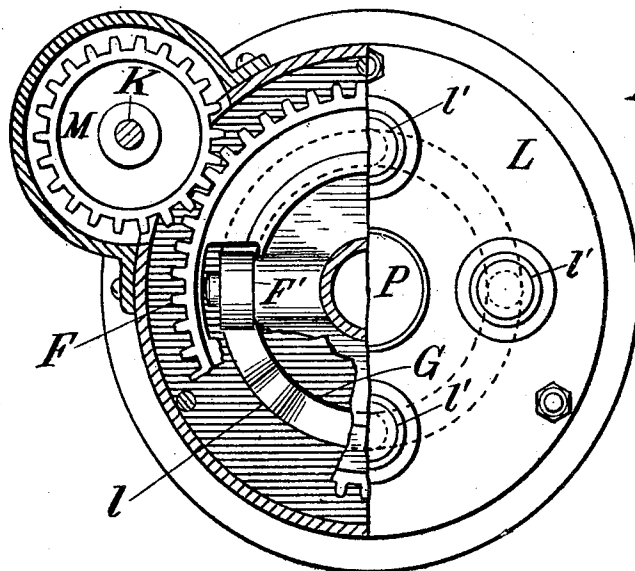


Fig. 4.

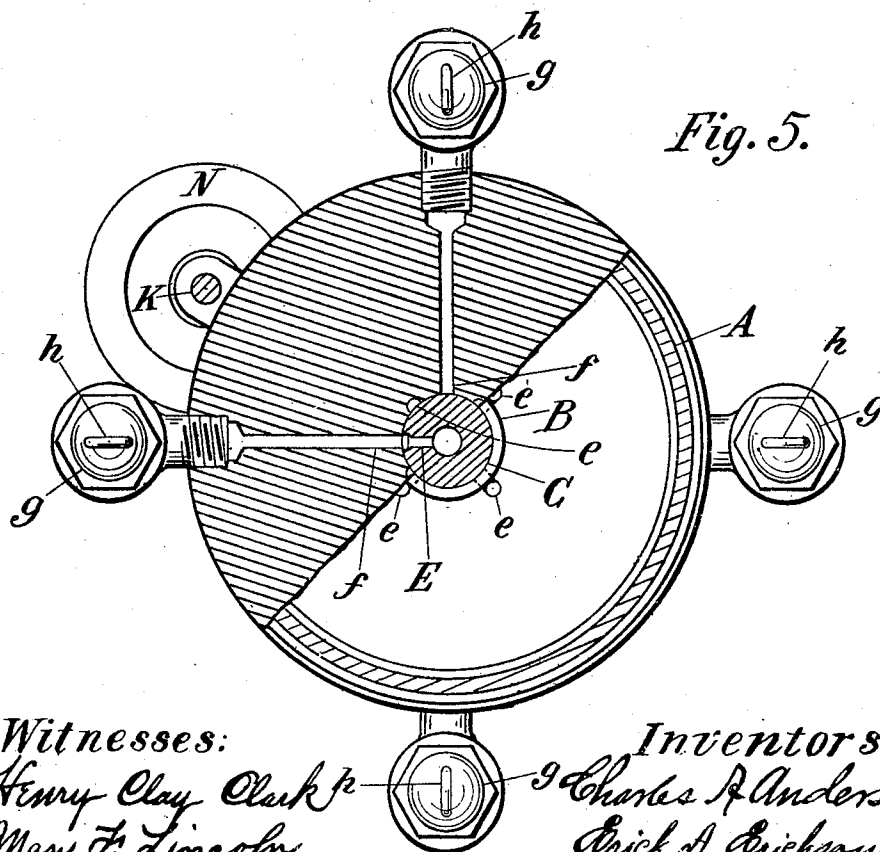


Fig. 5.

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UNITED STATES PATENT OFFICE.

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MULTIPLE-FEED LUBRICATOR.

No. 857,221.

Specification of Letters Patent.

Patented June 18, 1907.

Application filed October 13, 1904. Renewed March 11, 1907. Serial No. 361,893.

To all whom it may concern:

Be it known that we, CHARLES A. ANDERSON and ERICK A. ERICKSON, citizens of the United States, and residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Multiple-Feed Lubricators, and of which the following is a specification.

The object of our invention is to provide a simple mechanism for feeding a fluid, such as a lubricant, in desired quantities in repeated succession through any desired number of conduits.

A further object of our invention is to provide means whereby the amount of fluid ejected at any time into any particular conduit may be readily and accurately adjusted, the construction being such that a different adjustment may be had for each ejection conduit if desired.

The accompanying drawings illustrate our invention:

Figure 1 is a general view in partial vertical section of an apparatus embodying our invention: Fig. 2 is an axial section showing the piston-actuating mechanism and the intake ports: Fig. 3 is a similar view showing the piston-actuating mechanism in partial elevation and showing two of the ejection conduits: Fig. 4, a plan in partial horizontal section: Fig. 5 a section on line 2—3 of Fig. 1.

In the drawings, A indicates a suitable reservoir in the lower end of which is formed a cylinder B having ports *e* leading thereinto from the lower end of reservoir A. Mounted in cylinder B is a piston C provided with a port E which, at its lower end, emerges from the lower end of the piston while at its upper end it emerges from the cylindrical face of the piston at a point somewhat above its lower end. Leading from cylinder B are the eduction ports *f*, there being as many ports *f* as there are ports *e*, and the said ports being arranged alternately, in order that the upper end of the passage E of the piston C may come into successive registry therewith. The outer end of each eduction port *f* communicates with a sight-glass *g* through a discharge tube *h*, and an eduction pipe J leads from the sight-glass. Piston C is carried by a stem H which extends upwardly through the reservoir A and, at its upper end, is hollow, as at H', and journaled in the cover of

reservoir A. The portion H' is closed at its upper end by removable cap P, and at its lower end has openings which lead into the reservoir A, the arrangement being such that the reservoir A may be filled by pouring the liquid into the upper end of the port H'.

In order to rotate the piston C, the portion H' carries a gear F which meshes with a pinion M carried by a shaft *k* journaled on the reservoir A and provided with a suitable driving wheel N. The pinion M is considerably wider than the gear F in order that said gear may be given an axial reciprocation and still remain in mesh with the pinion. In order to produce the desired axial reciprocation of the piston C we provide the portion H' of said piston with a radially extending arm on the outer end of which is journaled a roller F' and said roller rides upon a circular track G provided at proper intervals with cam portion *l*, said cams being preferably of uniform height and serving to move the piston upward, *i. e.*, through its suction strokes, during the rotation of the piston. Gears F and M are inclosed in a suitable casing L and said casing carries a plurality of pins *l'*, one for each cam *l*, (and consequently one for each eduction passage *f*) said pins extending into the path of travel of roller F' when said roller has been moved upwardly by engagement with the cam *l*. The pins *l'* control the downward or ejecting strokes of the piston C and in order to vary the length of these ejection strokes the said pins are preferably threaded through the cover L so as to be adjustable toward and from track G, said pins being held in any desired position of axial adjustment by means of suitable check-nuts, or otherwise, as shown.

The operation is as follows: Shaft K is continuously rotated at any desired speed and piston C is correspondingly rotated by reason of the engagement of pinion M with gear F. As the piston is rotated roller F' comes into engagement with one of the cams *l* and the piston is thereupon raised at a time when the upper end of passage E is in register with one of the inlet ports *e*, thus permitting liquid to flow from the reservoir into the lower end of cylinder B. Continued rotation of the piston brings roller F' into engagement with one of the pins *l'* and the piston is thereupon driven axially in the opposite direction,

at a time when the upper end of its passage E is in register with one of the eduction passages *f*, thus forcing the liquid from the lower end of cylinder B out through passage E into the corresponding eduction passage *f*. The amount of the ejecting movement of the piston is determined by the adjustment of the upper pin *l'* and may not be sufficient to move roller *F'* down into engagement with track G, in which case the piston will be supported by the liquid within the lower end of cylinder B.

It will be noticed that any desired number of eduction passages may be provided and that the amount of liquid ejected at any given stroke into any eduction passage may be accurately determined wholly independent of the amount ejected through any other passage.

We claim as our invention:

1. In a pump, the combination, with a cylinder having induction and eduction ports communicating with the bore thereof, of a piston rotatably and axially reciprocable within said cylinder and having a passage formed therein and communicating with the cylinder at the end of the piston and adapted to be brought into registry with the induction and eduction ports successively, a gear carried by said piston, a second gear meshing therewith to completely rotate the piston, and means for axially reciprocating the piston and the gear.

2. In a pump, the combination, with a cylinder having induction and eduction ports communicating with the bore thereof, of a piston rotatably and axially reciprocable within said cylinder and having a passage formed therein and communicating with the cylinder at the end of the piston and adapted to be brought into registry with the induction and eduction ports successively, means for rotating said piston, means for axially reciprocating said piston, and means for adjusting the amplitude of the axial movement of said piston.

3. In a pump, the combination, with a cylinder having a plurality of eduction ports and means for introducing fluid thereinto, of a piston rotatably and axially reciprocable within said cylinder, and having a passage formed therein and communicating with the cylinder at the end of the piston and adapted to be brought into registry with the induction and eduction ports successively, means for rotating said piston, and a plurality of independently adjustable means for axially reciprocating said piston a plurality of times each rotation thereof, whereby the amplitude of the several axial reciprocations of the pistons may be independently varied.

4. In a pump, the combination, with a cyl-

inder having a plurality of eduction ports and means for introducing fluid thereinto, of a piston rotatably and axially reciprocable within said cylinder and having a passage formed therein and communicating with the cylinder at the end of the piston and adapted to be brought into registry with the induction and eduction ports successively, means for rotating said piston, and a plurality of means for axially reciprocating said piston a plurality of times each rotation thereof.

5. In a pump, the combination, with a reservoir, of a cylinder formed therein and having an induction passage leading thereto from the reservoir and an eduction passage leading therefrom, of a piston rotatably and axially reciprocable within said cylinder and having a passage formed therein and communicating with the cylinder at the end of the piston and adapted to be brought into registry with the induction and eduction ports successively, means for rotating said piston, a cam track engaging the said piston to move the same in one direction axially, a pin adapted to engage said piston and move the same axially in the opposite direction, and means for adjusting said pin axially of the piston.

6. In a pump, the combination, with a reservoir, of a cylinder having a plurality of induction ports leading thereinto from the reservoir and a corresponding series of eduction ports, a piston rotatably and axially reciprocable within said cylinder and having a passage formed therein and communicating with the cylinder at the end of the piston and adapted to be brought into registry with the induction and eduction ports successively, means for rotating said piston, a cam track having a plurality of cams adapted to engage the piston and shift the same axially in one direction a plurality of times for each rotation thereof, and a corresponding series of adjustable pins adapted to engage the piston and shift the same axially in the opposite direction.

7. In a pump, the combination, with a reservoir, of a cylinder supplied from said reservoir and having a plurality of eduction passages, an ejecting means arranged within said cylinder, means for operating said ejecting means a cycle of times corresponding with the number of ejection passages and delivering material in succession to the eduction passages, and means for independently varying the amplitudes of several ejecting operations in the cycle.

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