

No. 792,253.

PATENTED JUNE 13, 1905.

F. O. FARWELL.
LUBRICATOR.

APPLICATION FILED OCT. 17, 1904.

Fig. 1.

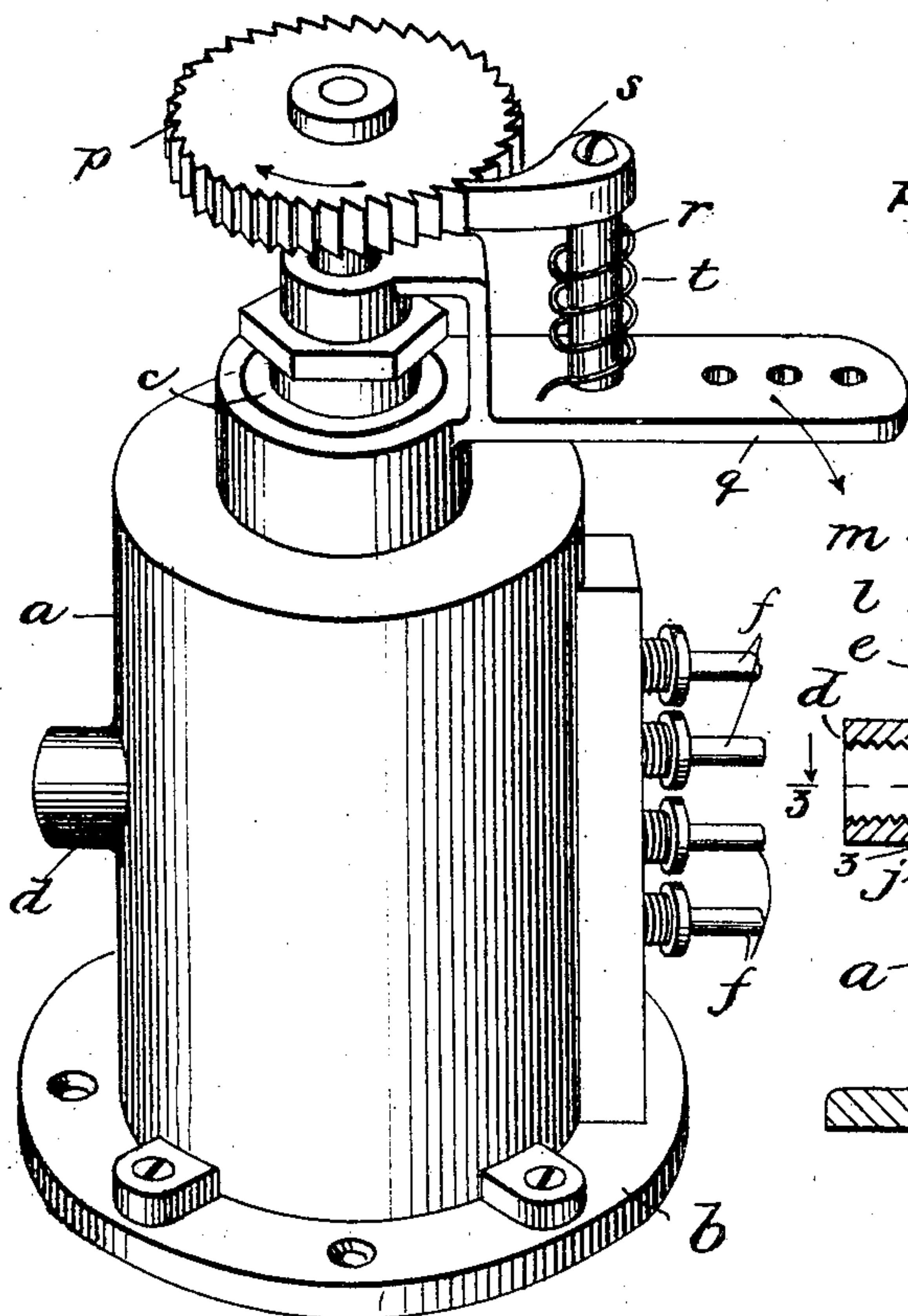


Fig. 2.

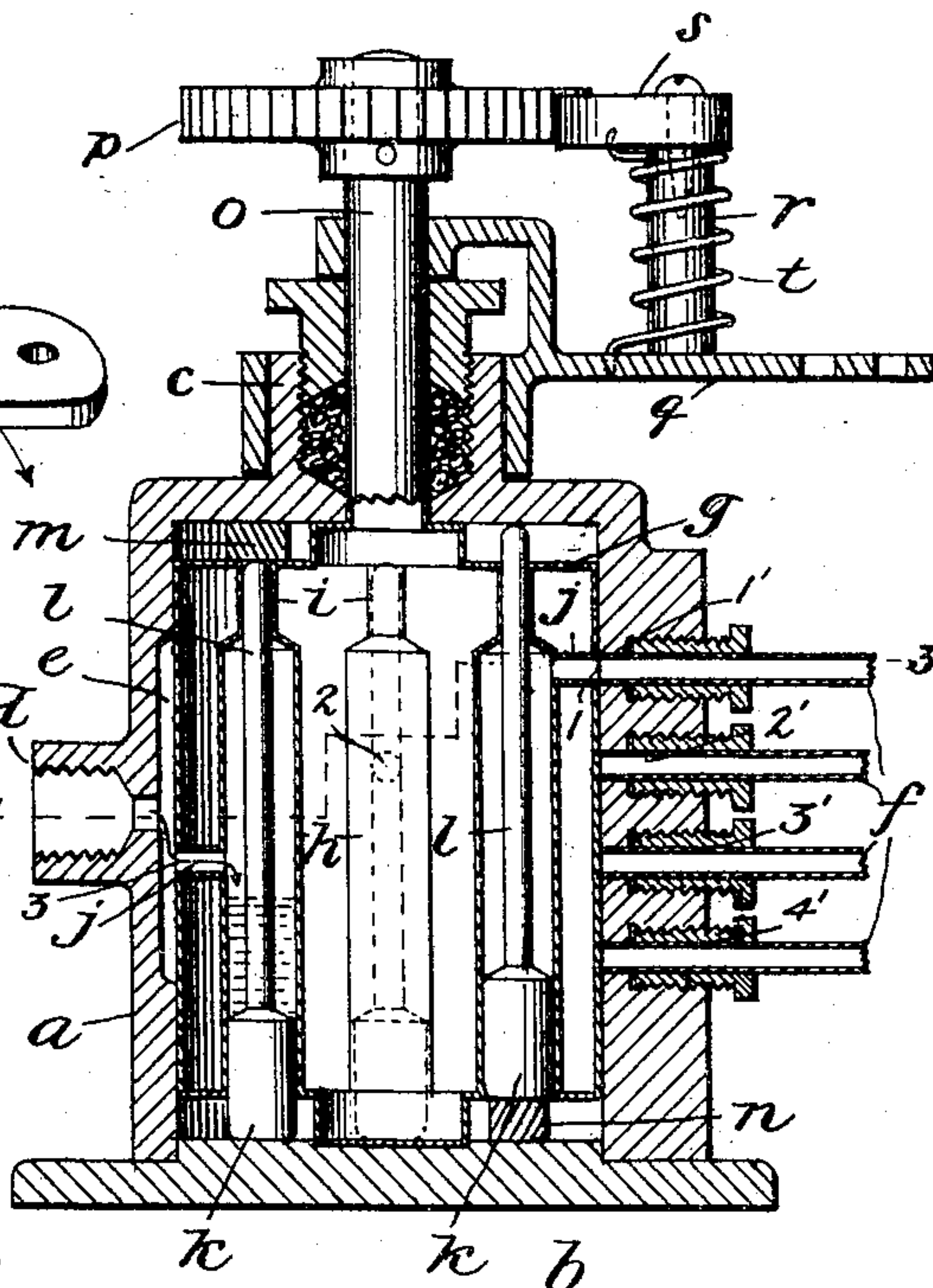


Fig. 3.

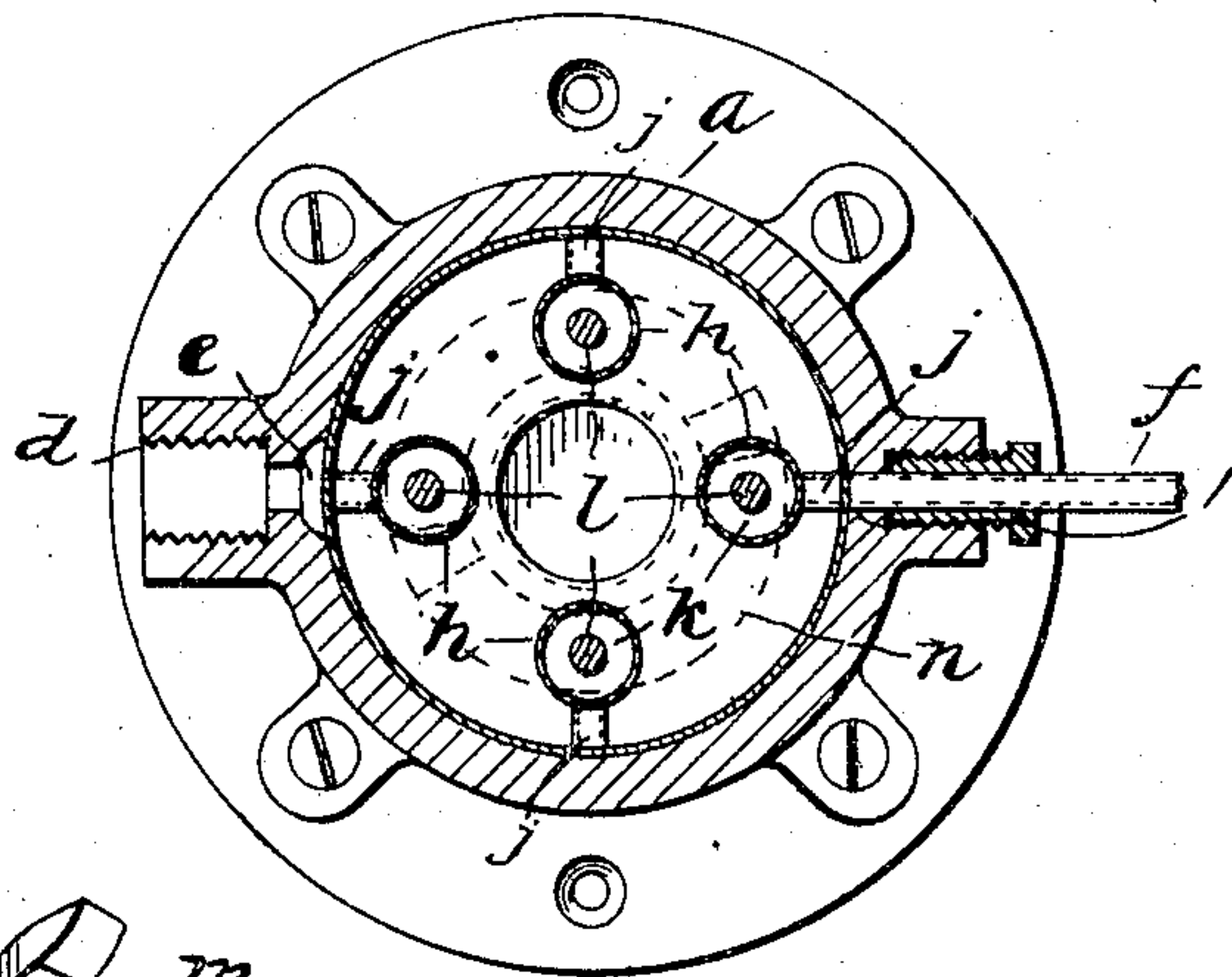
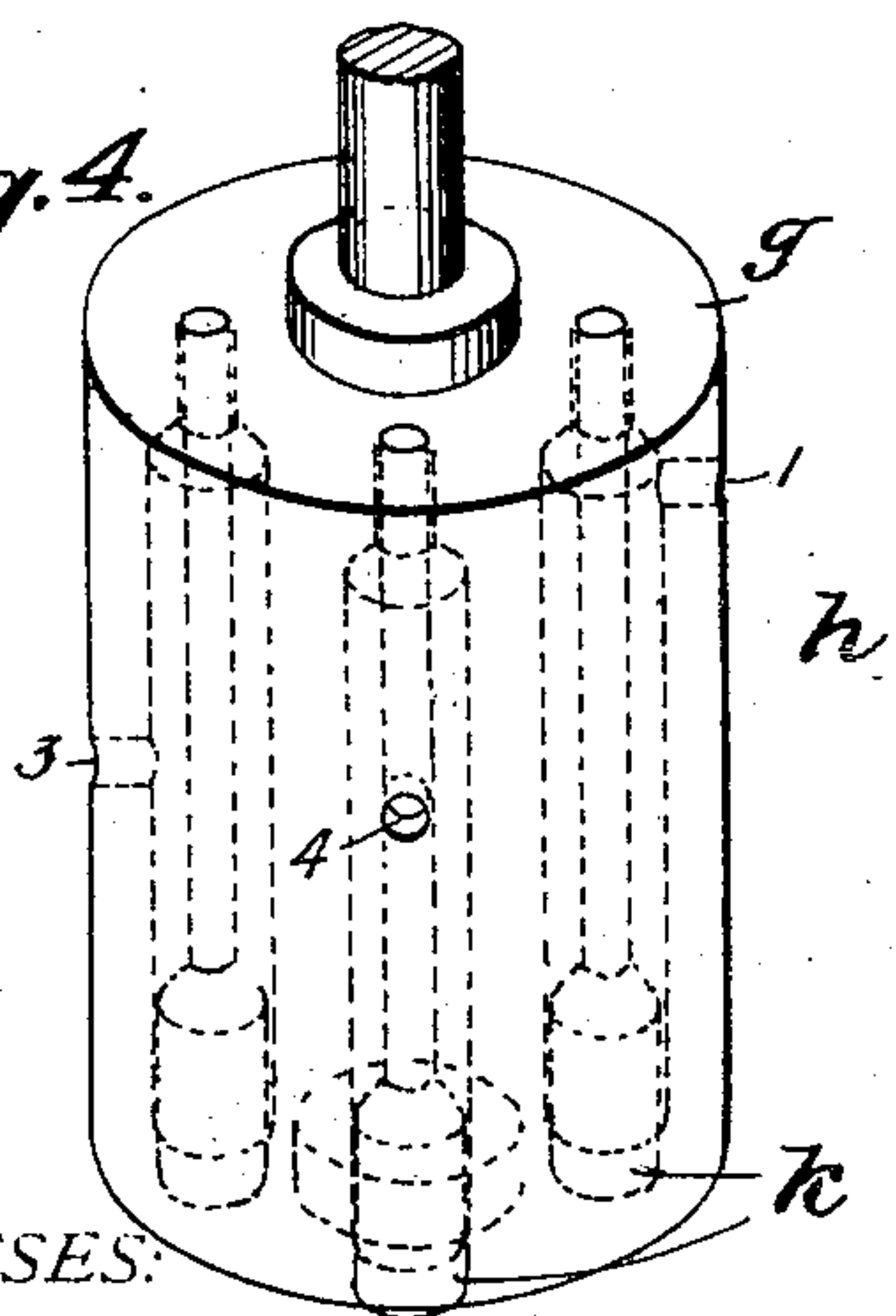


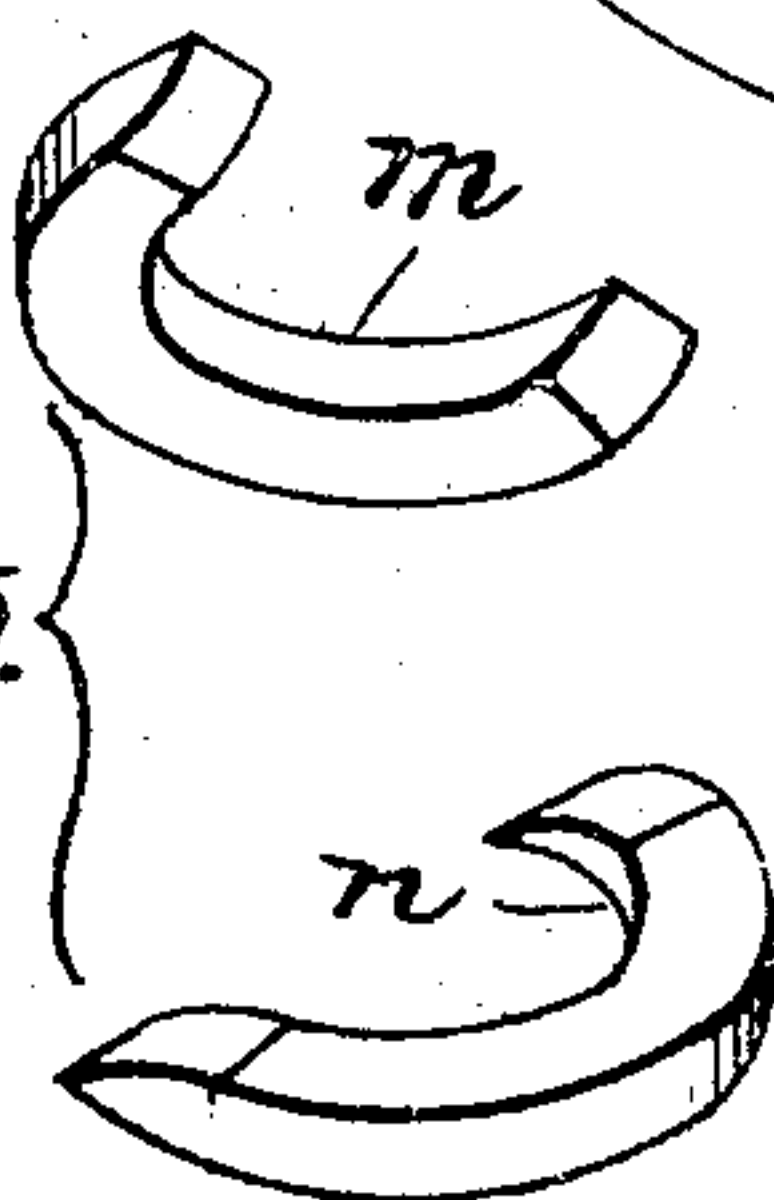
Fig. 4.



WITNESSES:

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Fig. 5.



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UNITED STATES PATENT OFFICE.

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LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 792,253, dated June 13, 1905.

Application filed October 17, 1904. Serial No. 228,759.

To all whom it may concern:

Be it known that I, FAY O. FARWELL, a citizen of the United States, residing in the city and county of Dubuque, State of Iowa, have
5 invented certain new and useful Improvements in Lubricators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
10 make and use the same.

My invention relates to lubricators, and has for its object to provide a device for distributing oil or the like to several points, such as the bearings of an engine, said device being
15 so constructed and arranged as to have a positive action without the use of valves and springs that are liable to break or stick or fail to operate.

The apparatus is particularly designed to
20 distribute very heavy oils, such as the high fire-test oils used for the cylinder lubrication of steam and gasolene engines, and is so arranged as to be unaffected by vibration incident to its use on automobiles and the like,
25 on which said engines are generally employed.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the lubricating device. Fig. 2 is a longitudinal section thereof. Fig. 3 is a transverse section
30 on line 3 3, Fig. 2. Fig. 4 is a perspective view of the inner barrel, carrying the cylinders and plungers. Fig. 5 is a perspective view of the operating-cams for the plungers.

In the drawings, *a* is a casing, preferably cast as a cylinder, with a removable end *b*, which may be secured to the casing by means of screws or other suitable devices. The inside of the casing is finished with a true cylindrical bore with a smaller central opening in the upper end and provided on the same end with a projection *c*, forming part of the stuffing-box to prevent the oil escaping. Within the casing is mounted a frame or barrel *g*,
40 which fits snugly within the cylindrical bore, but is of somewhat shorter length than the bore, two bosses or projections on the respective ends of the barrel serving to space the same longitudinally in the casing. The up-
45

per end of the barrel is provided with a stem *o*, which projects through the central opening in the case and passing through the stuffing-box is fitted at its upper end with a ratchet-wheel, by means of which the barrel is rotated.

Within the barrel *b* are secured a series of
55 longitudinal chambers or cylinders *h*, which are preferably made of a relatively large diameter for a greater part of their length and of a smaller diameter for a short distance at their upper portions. Within each chamber
60 *h* there is mounted for reciprocatory motion a piston *k*, having a rod or stem *i* projecting up through said cylinder and guided in the smaller upper portion thereof, so that the piston and its rod have a neat moving fit in the
65 larger and smaller bores of the cylinders. These pistons and their operating-rods constitute plungers, which are made slightly longer than the part of the barrel through which they pass, but are shorter than the length of the
70 cylindrical bore in the casing *g*, which permits an independent longitudinal movement of the plungers for the purpose hereinafter described.

Drilled in the periphery of the barrel *g* are
75 a series of openings 1 2 3 4, each communicating with one of the cylinders *h* by means of a short nipple or pipe-section *j*. In one side of the casing *a* is a groove or channel *e*, which is of sufficient length to communicate
80 with each of the holes in the barrel above referred to, the said holes being arranged in the barrel on different longitudinal lines and at different levels, as shown in Fig 2, so that the several holes are in stepped relation around
85 the periphery of the cylinder. On the outside of the casing *a* is a boss *d*, which is adapted to receive a pipe to conduct the oil or the like from a tank or reservoir to the channel *e*. At another point in the circumference of the casing
90 *g* is a row of holes 1' 2' 3' 4', which are adapted to register with the holes 1 2 3 4 in the barrel. Secured in the holes 1' 2' 3' 4', respectively, by means of screw-sleeves or other suitable attaching devices are tubes *f*,
95 which are adapted to be led to the points to which oil or the like is to be delivered.

Secured in the top of the casing in line with

the travel of the small end l of the plungers is a block or cam m , set in such position that it will push the plunger downward just as the hole communicating with the corresponding
 5 cylinder is passing the inlet-groove e . Fastened to the bottom of the casing a and in line with the travel of the larger ends k of the plungers is a second cam n , which is adapted to push the plungers up as they suc-
 10 cessively pass the outlet-holes $1' 2' 3' 4'$.

Journalled on the stem o of the barrel and the boss c of the casing is a ratchet-lever q , upon which is mounted a fixed stud r , carry-
 15 ing a ratchet s , pivoted to the top thereof, which is normally held in engagement with the teeth of the ratchet-wheel p by means of a spiral spring t , all so constructed that as the ratchet-lever is oscillated the stem o has imparted thereto a rotatory motion.

20 The operation of the device as above described is as follows: The barrel g is revolved in the proper direction by the ratchet mechanism above described or by any other suitable means, which may be actuated from some
 25 moving part of the engine or other mechanism to be lubricated. As each cylinder h in the barrel approaches the side of the case in which the inlet-groove e is located the small end l of the plunger strikes the cam m , which
 30 pushes the plunger down, and a quantity of oil or other liquid is drawn into the cylinder through the hole in the side thereof. As the barrel continues its rotatory movement the hole in the cylinder passes out of registry
 35 with the groove e and will be closed by the inner surface of the casing a , thereby pocketing the oil contained in the cylinder. When the barrel has moved sufficiently to bring the cylinder containing the oil in juxtaposition
 40 to the series of holes $1' 2' 3' 4'$, the lower end of the plunger in the cylinder strikes the lower cam n and forces the plunger up, and as the hole in the cylinder comes into registry with its mating hole in the casing a the
 45 oil is forced out of the cylinder and by way of the corresponding pipe to the part to be lubricated. This operation is taken up by each of the cylinders h in succession, each cylinder taking in a supply of oil while its
 50 inlet-orifice is in registry with the groove e and its plunger is depressed, carrying the pocketed oil around until the orifice in its side comes in registry with the mating hole or orifice in the casing and then discharging the
 55 contained oil into the appropriate pipe by the upward movement of its plunger.

In the accompanying drawings a lubricator has been shown for supplying four conduct-
 60 ing-pipes, leading to as many different parts to be lubricated. It is to be understood, however, that the same apparatus—to wit, a barrel containing four pumps or plungers—could be made to deliver oil to eight or twelve tubes by having two or three inlet-grooves e at dif-
 65 ferent points on the circumference of the cas-

ing, with a series of discharge-tubes between each pair of inlet-grooves and cam-blocks to impart two or three complete reciprocations to each plunger in its rotation. It will also
 be understood that two or more plungers 70 might deliver oil to one discharge-tube, if desired to have some tubes deliver more oil than others. Furthermore, the invention is not limited to any particular number of pumps
 or plungers and delivery-tubes. For exam- 75 ple, there may be arranged two concentric rows of plungers, each row consisting of three or more plungers, the inner row being adapted to draw oil from one source by way of one inlet-groove and the outer row of plungers 80 drawing oil from another supply by way of a separate inlet-groove, each series of plungers having of course their separate outlets. With this arrangement it would be possible to connect the inlets with tanks containing different 85 grades of oil, and the oil delivered from one series of discharge-tubes would be of one grade, while that delivered from the other series of tubes would be of a different grade, so that the apparatus could be used with advan- 90 tage to lubricate machinery which requires different kinds of oil on different bearings.

What I claim as my invention is—

1. An automatic lubricating device, comprising a cylindrical casing having inlet and 95 outlet ports, a rotatory frame in said casing, and a series of reciprocating pumps in said frame operated by the revolution of the latter, each pump having an orifice adapted to register alternately with the inlet and outlet 100 ports.

2. An automatic lubricating device, comprising a cylindrical casing having inlet and outlet ports, the latter being arranged at 105 different levels in the casing side, a rotatory frame in said casing, and a series of reciprocating pumps in said frame operated by the revolution of the latter, each pump having an orifice adapted to register alternately with the inlet and one of the outlet ports. 110

3. An automatic lubricating device, comprising a cylindrical casing having inlet and outlet ports, the latter being arranged at different levels in the casing, a rotatory barrel or frame in close peripheral engagement with 115 the interior of the casing, a series of longitudinal cylinders in said barrel, each having a discharge-orifice opening through the side of the barrel and adapted to be brought alternately into registry with the inlet and one of 120 the outlet ports, and means coöperating with said plungers to reciprocate the same as the barrel is rotated.

4. An automatic lubricating device, comprising a cylindrical casing having a longitu- 125 dinal inlet-port and a series of outlet-ports, the latter being disposed at different heights in the casing side, a rotatory barrel in close peripheral engagement with the interior of the casing, a series of longitudinal cylinders in 130

said barrel, each having a passage-way connecting its interior with the exterior of the barrel, each passage-way adapted to register alternately with the inlet-port and one of the 5 outlet-ports, plungers in said cylinders, and means for reciprocating said plungers as the barrel is rotated.

10 5. An automatic lubricating device, comprising a cylindrical casing having a longitudinal inlet-port and a series of outlet-ports, the latter being disposed at different heights in the casing side, a rotatory barrel in close peripheral engagement with the interior of the casing, a series of longitudinal cylinders in

said barrel, each having a passage-way connecting its interior with the exterior of the barrel, each passage-way adapted to register alternately with the inlet-port and one of the outlet-ports, plungers in said cylinders, cams 15 on the casing to reciprocate the plungers, 20 and means for imparting rotatory movement to said barrel.

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

FAY O. FARWELL.

Witnesses:

FLOYD A. OATEY,
COURTLAND L. BUTLER.