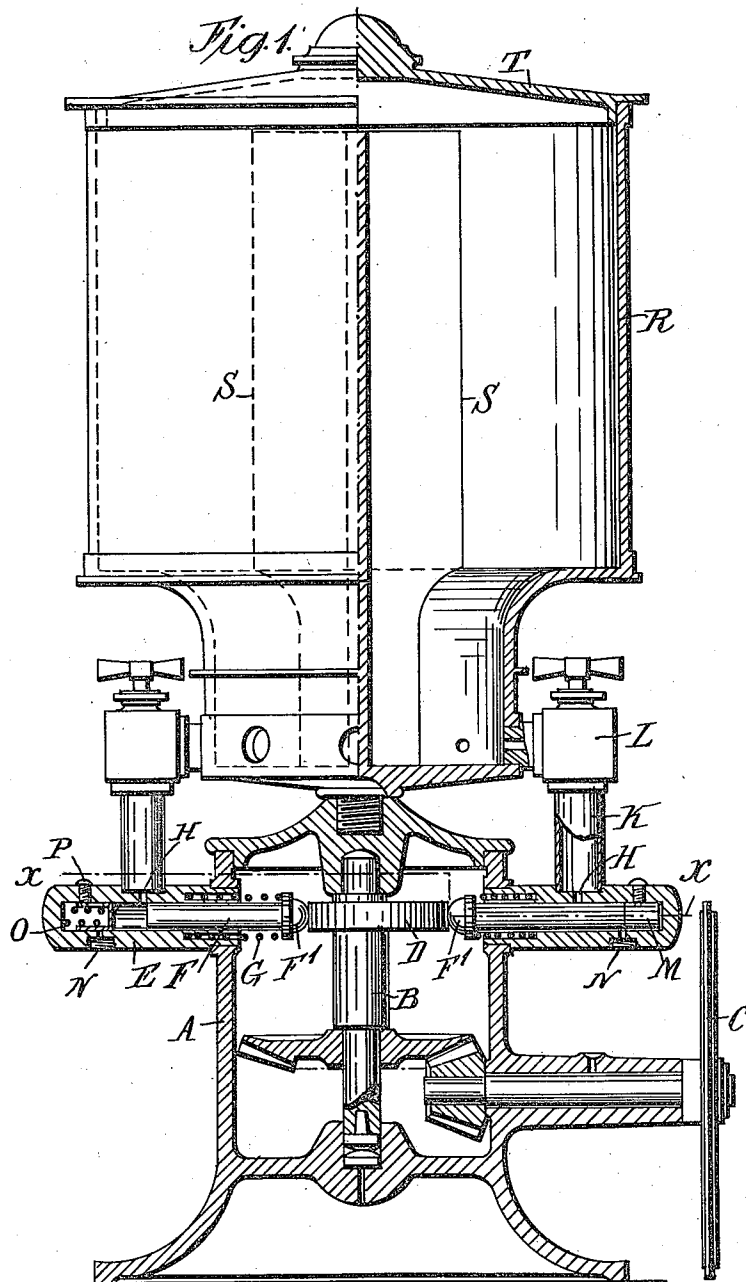


No. 831,890.

PATENTED SEPT. 25, 1906.

M. G. & W. H. PLANE.
POSITIVE FEED MECHANICAL LUBRICATOR.
APPLICATION FILED JAN. 6, 1906.

3 SHEETS—SHEET 1.



Witnesses.

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3 SHEETS—SHEET 2.

Fig. 2.

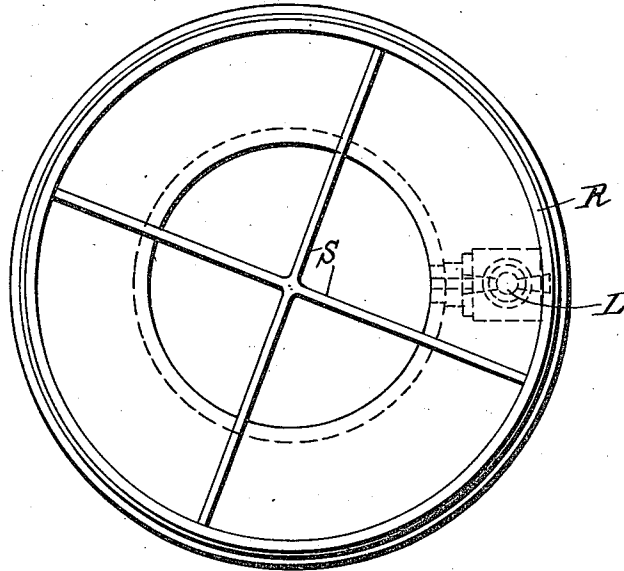
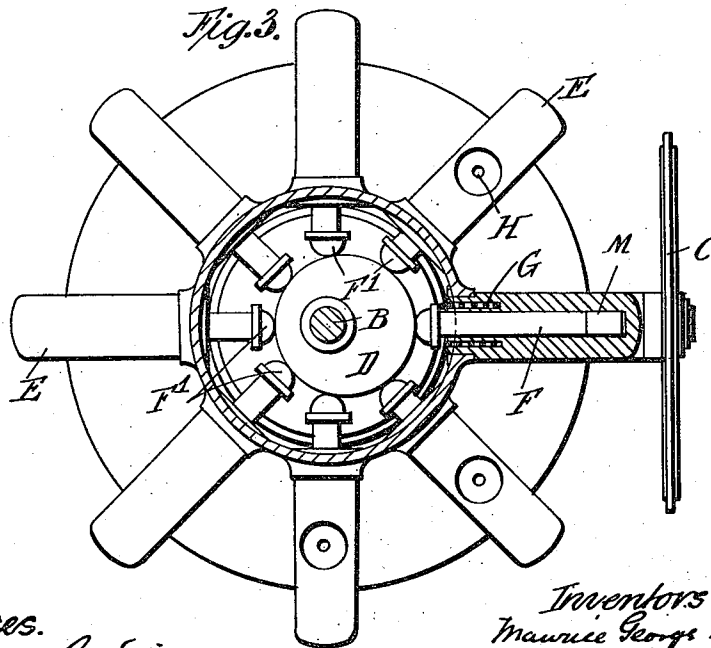


Fig. 3.



Witnesses.

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3 SHEETS—SHEET 3.

Fig. 4.

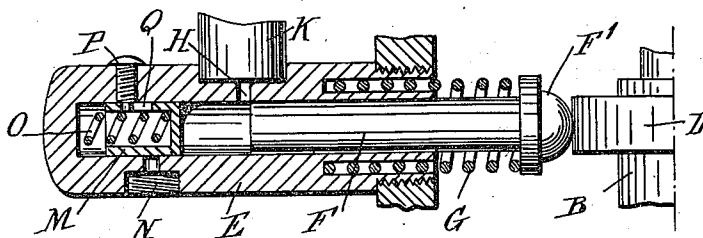


Fig. 5.

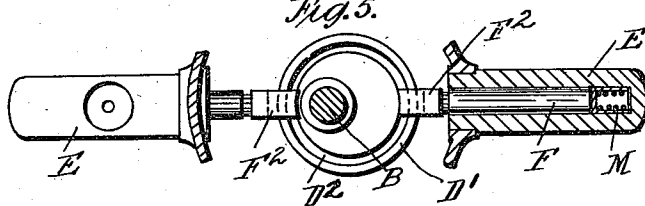
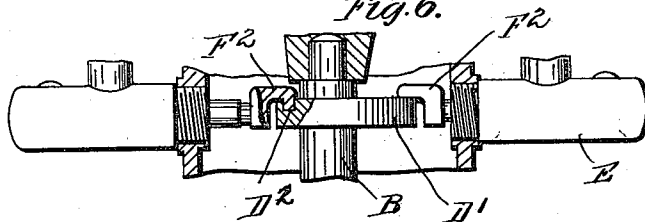


Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

MAURICE GEORGE PLANE AND WILLIAM HENRY PLANE, OF COLCHESTER,
ENGLAND.

POSITIVE-FEED MECHANICAL LUBRICATOR.

No. 831,890.

Specification of Letters Patent.

Patented Sept. 25, 1906.

Application filed January 6, 1906. Serial No. 294,855.

To all whom it may concern:

Be it known that we, MAURICE GEORGE PLANE, residing at Gordon Villa, Barrington Road, and WILLIAM HENRY PLANE, residing at Arrol Villa, Military Road, Colchester, county of Essex, England, subjects of the King of Great Britain and Ireland, have invented certain new and useful Improvements in and Relating to Positive-Feed Mechanical Lubricators, of which the following is a specification.

This invention relates to that class of oil-feed apparatus in which the oil is fed positively by a pump to the parts of the machine or engine which are to be lubricated, said apparatus consisting of a number of elements capable of independent control arranged horizontally on the radii of a circle, the elements being so arranged as to produce an apparatus by which each one of a large number of bearings or cylinders may be supplied with the kind of oil suitable to it, which shall occupy a minimum amount of space, which shall have a minimum number of working parts, and which shall be capable of being coupled up to the engine by a belt or some other suitable means, so as to be automatic in action, and so that the supply of oil shall vary, if required, directly as the speed of the moving parts.

The apparatus is single-acting and consists of a series of cylinders located horizontally on the radii of a circle and mounted in a casing, so that their open ends converge toward a common center. In these cylinders plungers are fitted which are driven by an eccentric fixed on a vertical shaft mounted in bearings in the casing and revolving at the common center above referred to. Each of the cylinders forms a pump, which may be supplied with oil from a source under independent control and which may supply an independent bearing or bearings or the interior of a cylinder.

The invention consists, further, in combining with this arrangement of pumps an oil-containing vessel carried on the casing over the pumps in any suitable manner, said containing vessel being, if necessary, divided internally by radial partitions into as many compartments as there are kinds of oil to be supplied, the compartments communicating

with their respective pumps at their lower ends by means of control-valves and sight-feeds.

In the accompanying drawings, which illustrate the manner in which the said invention is carried into effect, Figure 1 is an elevation, partly in section, of the complete apparatus. Fig. 2 is a plan view with the lid of the oil-container removed. Fig. 3 is a horizontal section on the line *xx*, Fig. 1. Fig. 4 is an enlarged vertical section of one of the cylinders shown in Figs. 1 and 3. Fig. 5 is a plan view, partly in horizontal section, of another form of construction which we adopt of driving the pumps from the eccentric. Fig. 6 is a view, partly in section and partly in elevation, of Fig. 5.

Referring to Figs. 1 to 6, A is a casing in which is mounted a vertical spindle B, which is driven through bevel-pinions by the wheel C, which may be connected by a belt or otherwise to the engine. On the spindle is mounted an eccentric D. A number of cylinders E are arranged horizontally round the casing A, being screwed in or otherwise suitably fastened. In these cylinders are arranged plungers F, with heads F', preferably of hardened metal, arranged to bear against and be driven by the eccentric D. The plungers are held extended from the cylinders and pressed against the eccentric by means of springs G.

In Figs. 5 and 6, which illustrate an alternative method of driving the plungers, the springs are dispensed with, and the heads F² of the plunger are adapted to engage with a groove D² in the upper surface of the eccentric D'. It is obvious that other means may be employed to connect the plunger-heads. They may, for instance, be attached to a "strap" surrounding the eccentric.

The oil is admitted to each cylinder by an aperture H, leading from the sight-feed K and control-valve L. The plunger itself acts as a valve to the aperture H.

A cylindrical hollow valve M (illustrated on an enlarged scale in Fig. 4) serves to close the exit N, which communicates with the delivery-pipes. On the return stroke of the pump the valve M is forced forward to follow the plungers partly by the spring O behind each valve M is forced forward vacuum created by the plunger. The forward

movement is limited by a stop P, screwed into the cylinders and engaging with a slot Q, cut in the side of the valves. When valve M reaches its foremost position, the plunger leaves the valve and travels on to the end of its stroke, whereby it uncovers the inlet-ports H, and the oil is drawn in partly by the vacuum created by the plunger and partly by gravity. On the delivery-stroke of the pump the plunger closes the inlet-ports H and compresses the oil in the cylinders between the valve M and plunger F until the pressure is such that it overcomes the resistance of the spring O, whereby the valve M is forced back and uncovers the exit-ports, through which the oil is discharged and forced to any part of the machinery.

The control-valves L are fastened in the drum R. This drum is screwed to the top of the casing A, said drum being, if necessary, divided internally into a number of compartments by radial partitions S. In the instance shown there are four compartments, each supplying two pumps. The drum is closed by a cover T. It must be understood that the drum may be so divided that each compartment supplies a single pump.

Mechanical lubricators constructed on these lines are positive, effective, and economical, lubrication only taking place when the spindle B is operated, the oil being fed from the lubricators partly by gravity and partly by suction and forced to the outlet or discharge pipes.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a mechanical lubricator, a supporting-casing, a plurality of radial cylinders fitted to and projecting from the casing on the exterior thereof, each of said cylinders having an oil-inlet and an oil-outlet, a normally closed cut-off for the outlet of each cylinder, a plunger working in each cylinder and arranged to operate as a cut-off for the inlet and as an actuator for the outlet cut-off, and common operating means for the several plungers housed within the casing.

2. In a mechanical lubricator, a supporting-casing, a reservoir surmounting the casing, a plurality of radial cylinders fitted to and projecting from the exterior of the casing, each of said cylinders having an oil-inlet and an oil-outlet, a spring-pressed normally closed cut-off for the outlet of each cylinder, a spring-projected plunger working in each cylinder against said spring-pressed cut-off, the inner ends of the plungers being exposed inside of the casing, and a driving device housed inside of said casing and including a cam member engaging the exposed inner ends of all of said plungers.

In testimony whereof we have affixed our signatures in presence of two witnesses.

MAURICE GEORGE PLANE.

WILLIAM HENRY PLANE.

Witnesses:

NEVILLE CLIFFORD GOODY,

FRANCIS HERBERT WEAKERALL.