

R. H. ELKINS.  
DISTRIBUTER FOR FORCE FEED LUBRICATORS.

APPLICATION FILED FEB. 8, 1906.

2 SHEETS—SHEET 1.

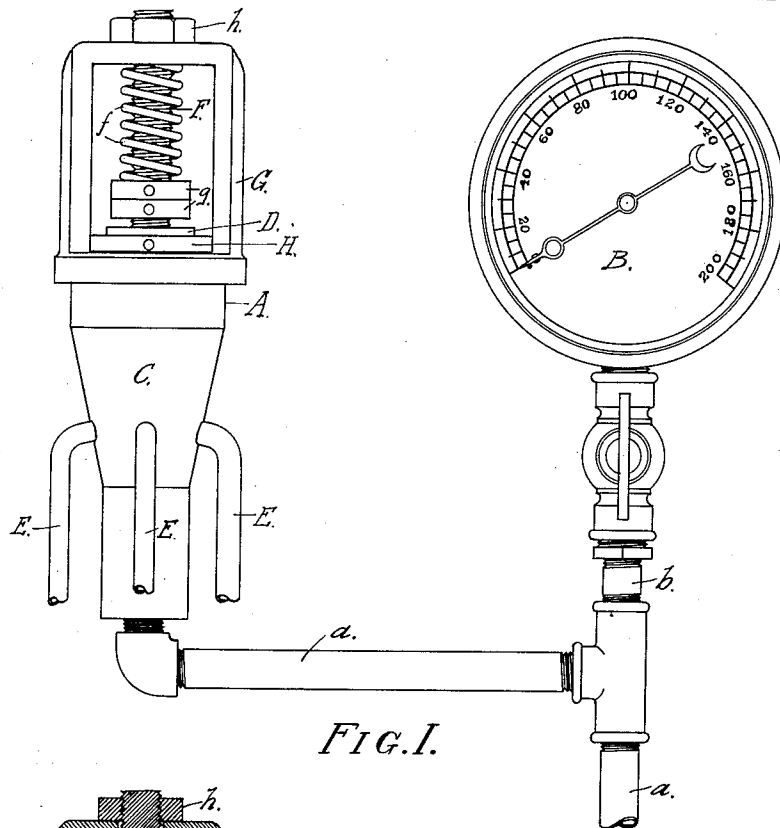


FIG. 1.

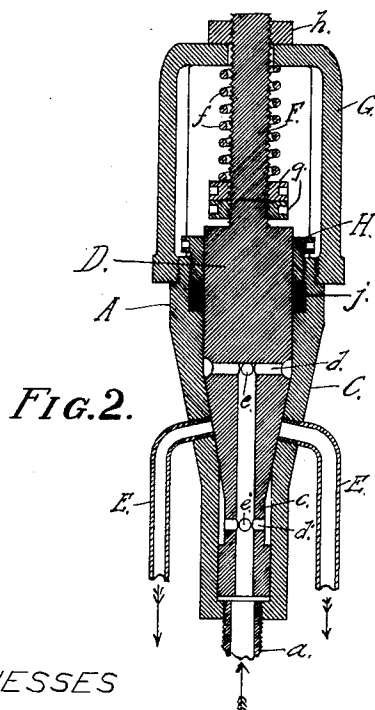


FIG. 2.

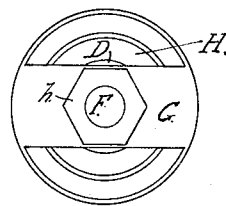


FIG. 3.

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2 SHEETS—SHEET 2.

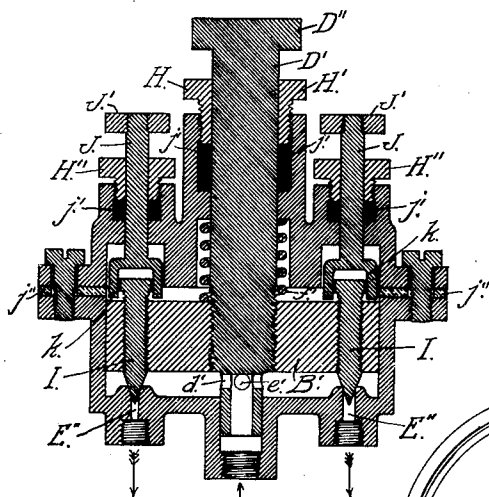


FIG. 5.

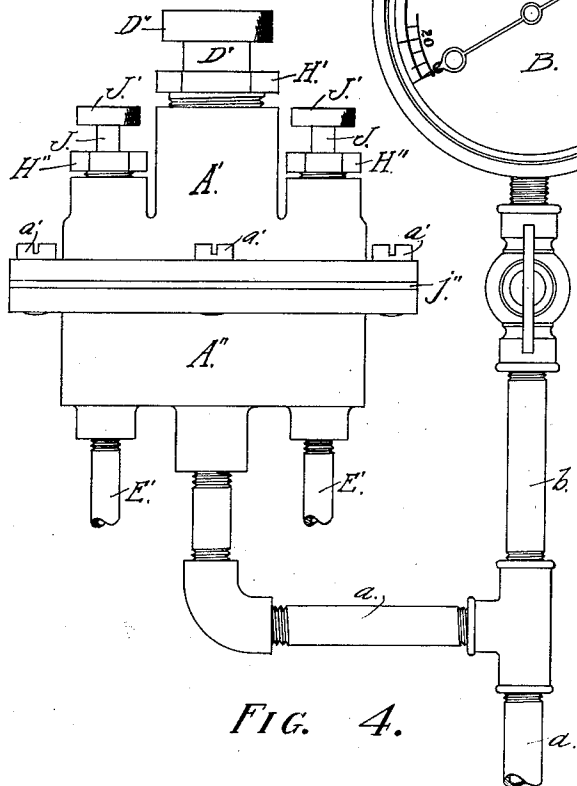


FIG. 4.

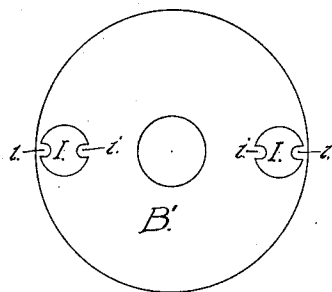


FIG. 7.

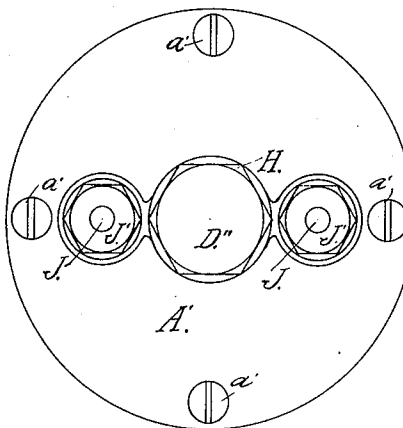


FIG. 6.

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# UNITED STATES PATENT OFFICE.

ROLAND H. ELKINS, OF SIOUX CITY, IOWA.

## DISTRIBUTER FOR FORCE-FEED LUBRICATORS.

No. 836,308.

Specification of Letters Patent.

Patented Nov. 20, 1906.

Application filed February 8, 1906. Serial No. 300,147.

*To all whom it may concern:*

Be it known that I, ROLAND H. ELKINS, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented a new and useful Improvement in Distributers for Force-Feed Lubricators; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to the lubrication of machinery, and particularly to means for the distribution of oil applied by force-feed lubricators.

The object of the invention is the provision of a device which will distribute any desired quantity of lubricant automatically in fixed ratios against different pressures to any part of the machinery and render the use of separate lubricators or pumps for each part unnecessary.

This object is accomplished by the device shown in the accompanying drawings, in which—

Figure 1 is a view of my device in side elevation, showing a gage attached. Fig. 2 is a vertical section of Fig. 1, the gage and pipe being omitted. Fig. 3 is a plan view of the distributor proper shown in Fig. 1. Fig. 4 is a view in side elevation of a modified form of distributor and gage. Fig. 5 is a vertical sectional view of distributor shown in Fig. 4. Fig. 6 is a plan view of distributor shown in Fig. 4, and Fig. 7 is a plan view of plate shown in Fig. 5.

Referring now to the illustrations, A is the distributor proper, which is seen situated in an upright position, attached to the supply-main *a*. Leading from the supply-main is another branch pipe *b*, to which the pressure-gage B is attached and registers the amount of the pressure from the lubricating-machine. The distributor consists of a round cage or shell C, smaller at the bottom, where it is screwed to the pipe *a*, which communicates with the interior of the cage. A taper plug D is supported in the cage, the upper part of the plug fitting the interior of the upper part of the cage, while the lower end fits the lower end of the cage, the middle of the stem part *c* being somewhat smaller than the interior of the cage. The inside of the plug is hollow from the lower end, which communicates with the pipe *a* up to the enlarged part, where a groove *d* encircles the interior, and annular

openings *e e* extend through the walls. In the interior of the stem part *c* is a similar groove *d'* and similar openings *e' e'*. The lubricant which is forced into the interior of the plug from the lubricator passes into the cage through these openings, and the force of the lubricant raises the plug and permits the lubricant to pass out through the pipes E E, which lead to any part of the machinery to be lubricated. As the pipes are of different sizes, depending upon the quantity of lubricant which each part requires, the flow to each part of the machine is easily regulated. The ratio is determined by the area of the opening at the point of discharge from the distributor. The quantity is determined by the amount forced into the distributor through the supply-mains.

The upper part of the plug terminates in a screw-threaded stem F, encircled by a coil-spring *f*, and is supported in a yoke G, screwed upon the upper part of the cage. The spring rests between the lock-nuts *g g*, screwed upon the lower end of the stem F and the upper part of the yoke. A nut *h* upon the outer end of the stem provides means for regulating the depth to which the plug is allowed to sink in the cage. The plug is thus permitted to sink until a perfect joint is made with the inner walls of the cage. The tension of the spring overcomes the pressure of oil from the lubricator and may be adjusted by turning the lock-nuts *g*. A packing-gland H and the usual packing *j* in the upper part of the cage against which the upper part of the plug operates prevent any leakage of the lubricant from the top.

In Figs. 5 and 6 is shown a modified form of distributor. The cage is of different shape and is composed of an irregular-shaped upper part A' and lower part A'', secured together by screws *a'*, the two parts being separated by packing *j''*. Instead of the taper plug a straight plug D' is provided, to the enlarged part of which is screwed a flat plate B', which freely fills the entire circumference of the central part of the interior of the cage. The lower end of the plug is hollow up to the part which joins the plate and has the interior groove *d'* and the openings *e'* leading into the cage. The plug is also provided with coil-spring *f'*, resting between the plate and the upper part of the cage, and also the packing-gland H' and packing *j'*. On each side of the straight plug is a solid taper plug I, made in the form of a screw and extending through

the plate, the lower ends being pointed and adapted to rest in the entrances E'' to the outlet-pipes E', which convey the lubricant to the different parts of the machinery. Any number of solid plugs may be similarly situated, the number being limited only by the space of the interior of the cage and the plate and by the number of outlets required. The heads of the solid plugs have valve-stems J J, which form a yoke over the heads of the plugs and tongues k k on the inside of the yokes fitting the grooves i i in the plug-heads. The heads of the stems are provided with nuts J' J', having milled edges by which the nuts can be more easily turned for adjustment of the plugs in the plate and regulating the length of the projecting ends. The points of the plugs are never entirely free of the outlets, as the tops of the yokes will strike the upper part of the interior of the cage before the points are free. The solid plugs are provided with packing-glands H'' and packing j' and the central plug with a head D'', having milled edges.

Both forms of distributor operate upon the same principle, which is that the amount of the lubricant discharged through each outlet-pipe is determined by the size of the entrance to the outlet, and the ratio of discharge through the different outlets is maintained by the tension of the spring around the central plug. As some parts of the machinery have greater back pressure than others, the tension of the spring must be always strong enough to overcome that of the greatest, which is usually that from cylinders of engines.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an oil-distributor, an outer shell, a plug therein partly hollow and having communication with the supply-main of a lubricator, pipes leading to the machinery to be lubricated, and means for regulating the

pressure of oil from the lubricator, substantially as described.

2. In an oil-distributor, an outer shell, a central plug therein having inner communication with the supply-main of a lubricator and with the interior of the shell, means for regulating the pressure of oil from the lubricator and overcoming the same and pipes leading from the interior of the shell to the machinery to be lubricated, substantially as described.

3. An oil-distributor consisting of an outer shell, a plate therein freely filling the shell, a central plug secured to said plate having inner communication with the supply-main of a lubricator and with the interior of the shell, pipes leading from the interior of the shell to the machinery to be lubricated, plugs secured to said plate and adapted to regulate the supply of oil to said pipes, and means for regulating the pressure of oil from the lubricator, substantially as described.

4. An oil-distributor consisting of an outer shell, a central plug therein having communication with the supply-main of a lubricator, pipes adapted to convey lubricant from said plug, a spring for regulating the pressure of oil from the lubricator upon said plug and plugs for regulating the supply of oil to said pipes; substantially as described.

5. An oil-distributor consisting of an outer shell, a central plug therein having inner communication with the supply-main of a lubricator and with pipes leading to the machinery to be lubricated, means for regulating the quantity of oil in said pipes and means for regulating the pressure of oil from the lubricator, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

ROLAND H. ELKINS.

Witnesses:

F. W. LOHR,  
H. C. GAULIVER.