No. 897,448. PATENTED SEPT. 1, 1908.

E. BLAKE.

PISTON ROD LUBRICATOR.

APPLICATION FILED APR. 9, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

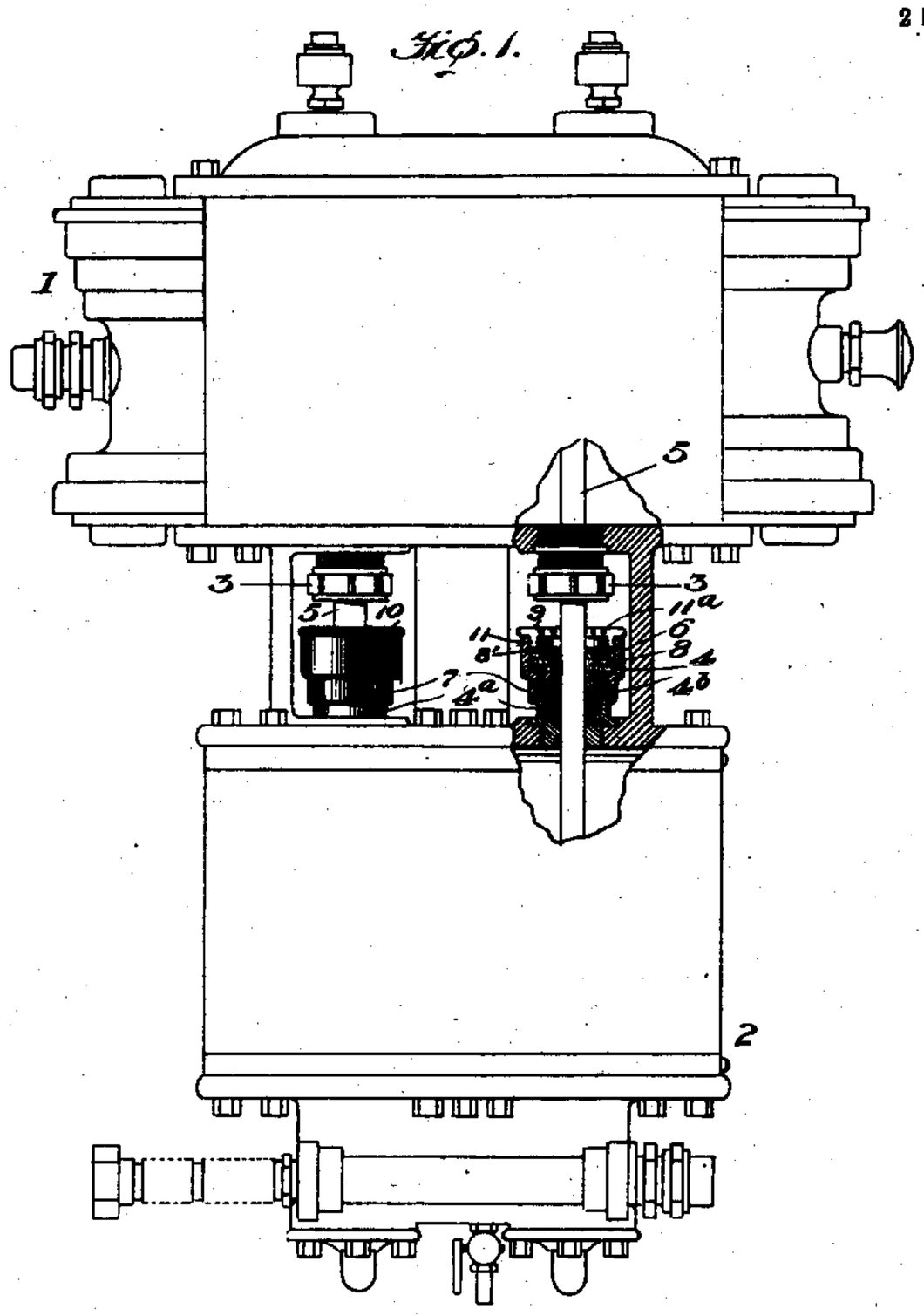
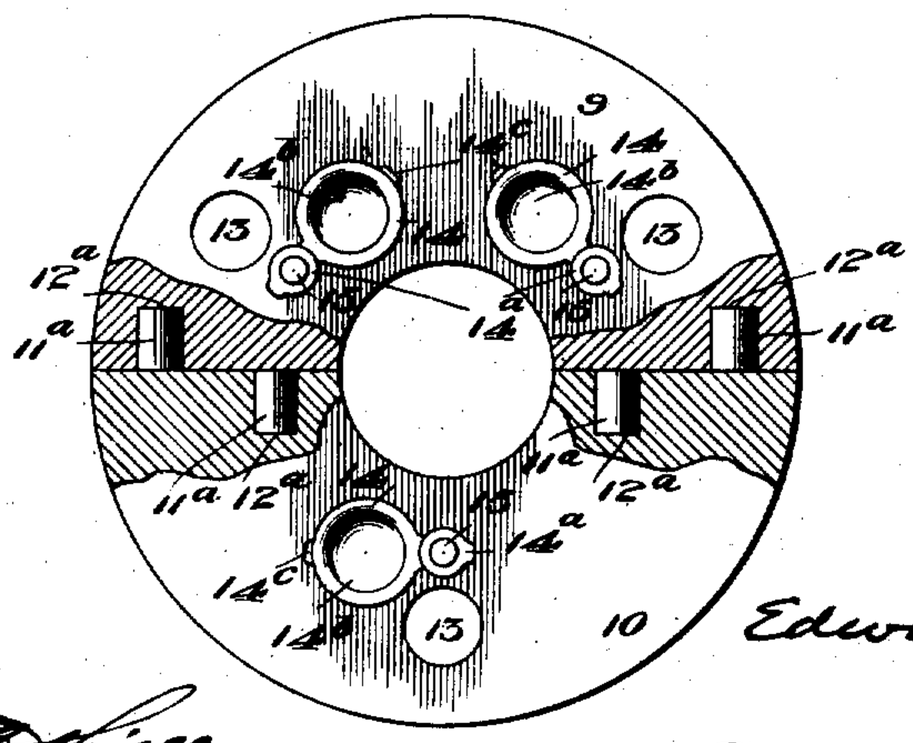


Fig. 2.



Witnesses

M. L. Newcomb

Inventor

Edward Blake

By George Lawrence

His Attorney

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2 SHEETS—SHEET 2.

Fig. 3.

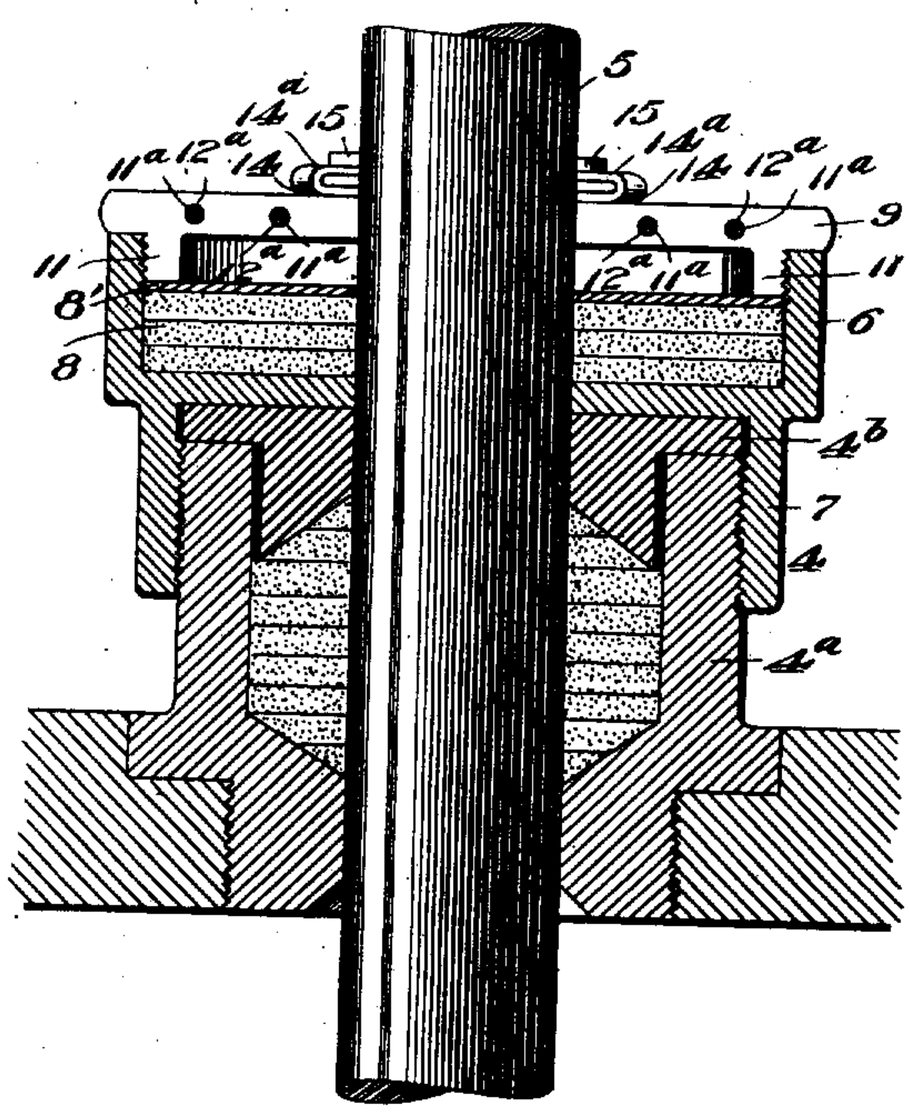


Fig. 4.

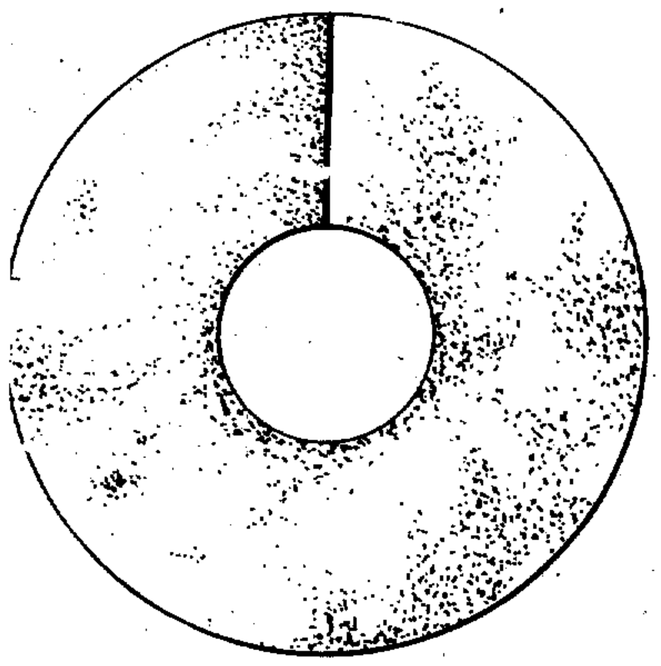


Fig. 5.

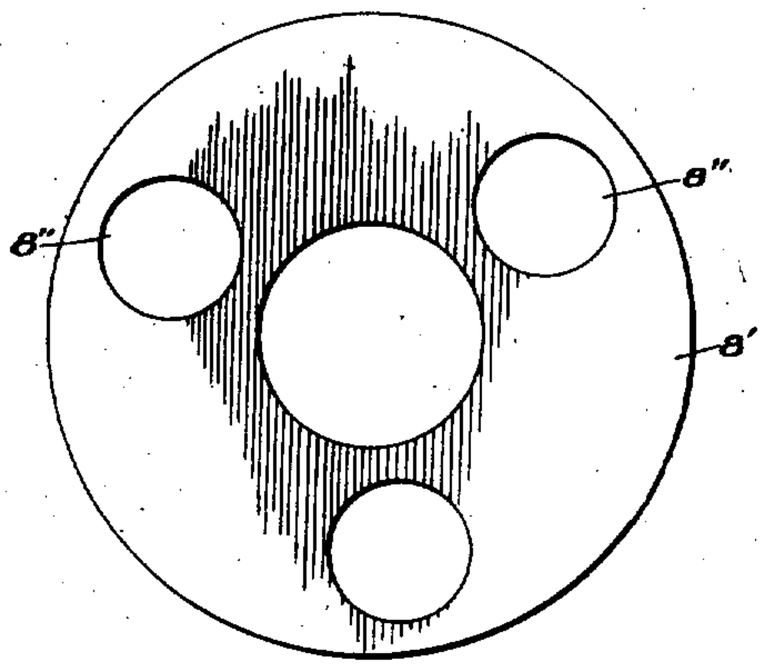
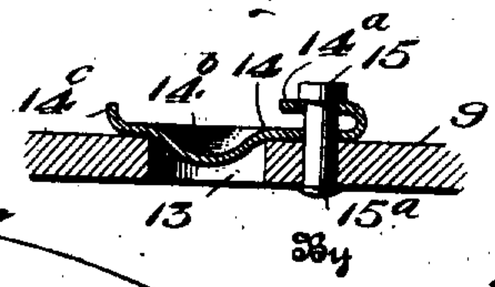


Fig. 6.



Witnesses

J. Newcomb

Inventor

Edward Blake

By

Geo. H. Strawbridge

His Attorney

UNITED STATES PATENT OFFICE.

EDWARD BLAKE, OF KENORA, ONTARIO, CANADA.

PISTON-ROD LUBRICATOR.

No. 897,448. Specification of Letters Patent. Patented Sept. 1, 1908.

Application filed April 9, 1908. Serial No. 426,032.

To all whom it may concern:

Be it known that I, EDWARD BLAKE, a subject of the King of Great Britain, residing at Kenora, Ontario, Canada, have invented certain new and useful Improvements in Piston-Rod Lubricators, of which the following is a specification.

My invention relates to piston rod lubricators.

The present invention, while intended for use in any connection where a piston rod is employed, is especially adapted for use with the piston rods of locomotive air pumps used for supplying the air brake system.

The present invention has for its object the provision of a novel lubricator of the class set forth which will automatically and properly lubricate the air cylinder, the steam cylinder, and the piston packing, regardless of the speed at which the pump is operating; which may be easily filled without stopping the pump; will cease feeding and thus economize the quantity of oil used, when the pump is stopped; will prevent the accumulation of gum around the feed valve and brake valve and around the diaphragm and pin valve in the pump governor as well as preventing sticking of the triple valves; and otherwise being of such efficiency that groaning of the pump will be obviated, cutting of the parts prevented, thus lengthening the life of the pump, besides being of such improved construction that it can be readily placed in position and will permit repacking of the glands of both the air and steam cylinders without requiring removal of the lubricator.

The invention is set forth fully hereinafter and its novel features are recited in the appended claims.

In the accompanying drawings:—Figure 1 is a view showing the lubricator in use on an air pump such as used on locomotives; Fig. 2, a plan view of the lubricator, showing the cap broken away; Fig. 3, a vertical section through the lubricator; Fig. 4, a plan view of one of the swabs; Fig. 5, a plan view of the retaining plate for the swabs; and Fig. 6, a detail section of one of the oil-hole covers.

The invention has been shown in connection with an air pump of the type usually used on locomotives for supplying the air brake system because it is peculiarly adapted to this use although it is not limited to such use as it may be employed in connection with any piston which requires lubrication.

1 represents the steam end and 2 the air end of an automatic steam actuated air pump which is disposed in a vertical position on the side of the locomotive. The glands 3 and 4 for the piston rod are, in practice, disposed comparatively close together. The gland bushing 4^a is externally threaded and ordinarily receives the gland shown at 3 but as my lubricator is intended to screw on to this bushing, the ordinary gland is omitted. The lubricator cup 6 is circular and has the nut gland 7 which screws on the gland bushing 4^a, thus holding the packing follower plate 4^b in position and taking the place of the gland itself. The cup 6 contains radially split swabs 8 of felt or other suitable material, these swabs being split so that they may be readily removed or replaced and they bear upon the piston 5. Resting on the swabs 8 is an annular plate 8′ having holes 8″ for the passage of the oil and the insertion of the fingers when placing or removing the plate. The plate is held against the swabs 8 by the cap or cover, described presently, and prevents them from being torn by the reciprocations of the piston 5.

The cap or cover consists of two semi-circular parts 9 and 10, each of which has a semi-circular screw-threaded flange 11 to engage the screw threads 12 on the interior of the cup 6. Each of the cap sections 9 and 10 has dowels or lugs 11^a to fit in openings 12^a in the other section, and each cap section has oil holes 13 through which the oil may be introduced into the cup 6 to saturate the swab 8. These oil holes are closed by covers 14 consisting of a piece of spring metal having a bent part 14^a through which a pin 15 loosely passes, said pin being riveted at 15^a to the under side of the cap. The cover has a depressed part 14^b to insure its retention over the opening 13 and it also has a thumb piece 14^c permitting easy manipulation. This construction of cover is substantially dust proof and incapable of being accidentally displaced by the jarring of the pump.

The interior diameter of the cup 6 is greater than the outer diameter of the gland 3 on the steam end of the pump, thus permitting the packing of both gland 3 and gland 4 without removing the cup 6 from the piston rod 1. When it is necessary to pack either of the glands, the cap is unscrewed and the sections 9 and 10 separated and removed from the piston rod 1. The gland 3 can then be slipped inside the cup 6 until the upper gland is repacked, or the cup 6 can be unscrewed

and slipped up over the gland 3 and the lower gland 4 repacked, the felt or swab pieces 8 having first been removed in each instance. After the desired repacking has been accomplished, the parts will be returned to their former position. This feature of the invention renders the lubricator particularly adapted for use in connection with air pumps for air brake systems.

If the lubricator is properly applied, being screwed neither too tight nor loose, it will automatically swab the piston 1, applying just enough oil at each stroke, regardless of the speed of the pump, to lubricate the air cylinder. From actual tests I have found that this lubricator will automatically lubricate the air and steam cylinders and the piston rod packing, regardless of the speed of the pump and may be filled without stopping the pump; it will cease feeding and thus economize the use of the oil when the pump is stopped, doubling the life of the air cylinder and piston rod packing and minimize reboring the air cylinders and renewing the rings; prevent over heating and cutting, accumulation of gum around the discharge valves, the diaphragm, and pin valves in the pump governor, and around the feed and brake valves, preventing sticking of the triple valves on the engine tender, prevent groaning, and many other drawbacks which the ordinary lubricator will not obviate, beside which it may be readily placed in position and permit repacking of the glands of both the air and steam cylinders without necessitating removal of the lubricator.

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

1. In a piston rod lubricator, the combination with a lubricating cup and a piston swab contained therein, of a split cap removably attached to the mouth of said cup.

2. In a piston rod lubricator, the combination with a solid or integral lubricating cup and a piston swab contained therein, of a split cap removably attached to said cup having means for the securement together of its parts.

3. In a piston rod lubricator, the combination with a lubricating cup and a piston swab contained therein, of a split cap removably attached to the mouth of said cup having lugs and openings on its respective parts received one within the other.

4. In a piston rod lubricator, the combination with a lubricating cup having screw-threads at its mouth, and a piston swab contained therein, of a split cap, the sections of which are directly engaged with the screw-threads on the cup for holding the swab therein.

5. In a piston rod lubricator, the combination with a lubricating cup having screw-threads at its mouth, and a piston swab contained therein, of a split cap, the sections of which are directly engaged with the screw-threads on the cup for holding the swab therein, and dowels on the cap sections for holding said sections together.

6. In a lubricator, a cover for an oil feed opening comprising a pin, and a cover having a bent or looped resilient part loosely mounted on the pin.

7. In a piston rod lubricator, the combination with a piston rod, a gland bushing, and packing for the piston rod, of a lubricating cup screwed on to the gland bushing and adapted to act on the packing in said gland bushing, a lubricant applying device contained within the cup, and a cap for the cup.

8. The combination with a steam-air pump comprising air and steam cylinders, pistons in said cylinders and a piston rod connecting the pistons, of packing glands for the respective cylinders through which the piston rod plays, a lubricating cup removably attached to one of the gland bushings and of sufficient size to receive the gland of the other packing gland when slipped along the piston rod, and a removable cap for the lubricating cup.

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

EDWARD BLAKE.

Witnesses:
N. EASTES,
GEO. JAMES.