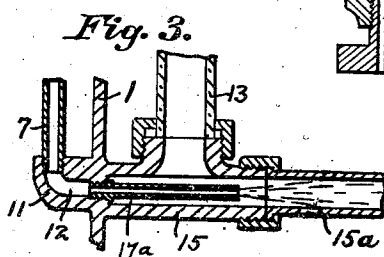
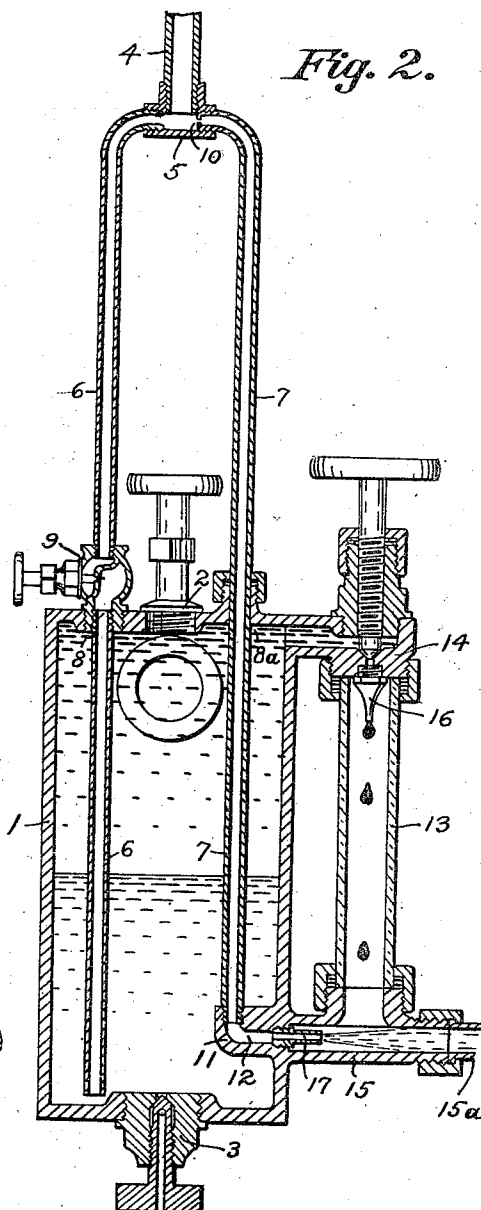
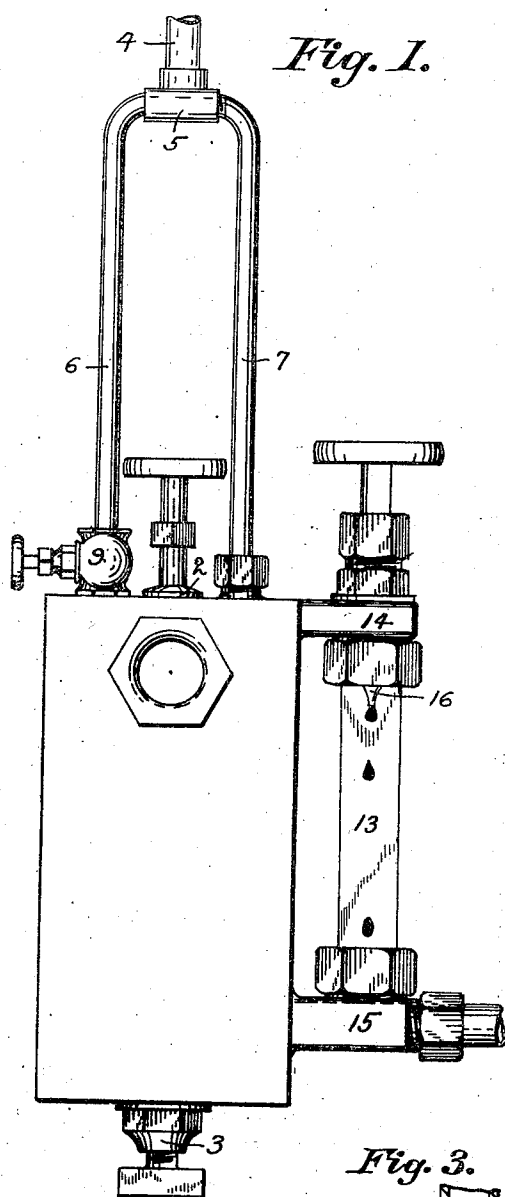


F. LOWRY.
 DROP FEED LUBRICATOR.
 APPLICATION FILED APR. 27, 1909.

946,450.

Patented Jan. 11, 1910.



Witnesses;
 Wm. R. Rhoads.
 Ruth A. Miller

Frank Lowry
 Inventor.
 By Harry Freese,
 Attorney.

UNITED STATES PATENT OFFICE.

FRANK LOWRY, OF STEUBENVILLE, OHIO, ASSIGNOR TO THE OHIO GREASE LUBRICANT COMPANY, OF LOUDONVILLE, OHIO, A CORPORATION OF OHIO.

DROP-FEED LUBRICATOR.

946,450.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed April 27, 1909. Serial No. 492,609.

To all whom it may concern:

Be it known that I, FRANK LOWRY, a citizen of the United States, residing at Steubenville, in the county of Jefferson and State of Ohio, have invented certain new and useful Improvements in Drop-Feed Lubricators, of which the following is a specification.

The invention relates to a steam-actuated lubricator designed and intended to be connected with a steam line supplying the steam chest and valves of an engine; and the object of the invention is to provide a lubricator which will heat and feed grease, as well as normally liquid oil, into the supply-line under all conditions of temperature, and also in the heated condition and vaporized form which are necessary for most efficiently lubricating all the parts of the engine.

In lubricators of this class, difficulty has been experienced in heating the grease and maintaining it in the proper temperature for working, and also in preventing a freezing or thickening of the grease. Further difficulties arise from the use of sight-feed lines in which the drop of liquid grease or oil is required to form or rise in a collecting-chamber containing water, for the reason that unless the water is constantly maintained at or replenished to the overflow line, the grease cannot leave the chamber, but remains on the surface thereof and sometimes mixes with and discolors the water. This difficulty is accentuated in traction and other engines subject to sudden jars and excessive vibrations, which tend to agitate the water and also to throw the same out of the collecting-chamber. These more general difficulties are overcome and other ancillary advantages are attained by the construction and arrangement shown for a preferred embodiment of the invention in the accompanying drawing, forming part hereof, in which—

Figure 1 is a side elevation of the improved lubricator; Fig. 2, a similar view in section; and Fig. 3, a fragmentary section showing a modified form and arrangement of the steam nipple.

Similar numerals refer to similar parts throughout the drawing.

The case 1 of the lubricator is preferably made square or rectangular in form, with the filling plug 2 in the middle of the top

and the drain valve 3 in the middle of the bottom. The steam-pipe 4 is connected to the supply-line, not shown, at a convenient point above the lubricator, and is provided with the three-way fitting 5 on its lower end. The condensing-pipe 6 is connected to one branch of this fitting and the heating-pipe 7 to the other branch thereof, whence the condensing and heating pipes are extended downward and enter the reservoir through the apertures 8 and 8^a, preferably located on opposite sides in the top of the case.

The condensing-pipe 6 is preferably provided with the controlling valve 9, and this pipe extends downward through the reservoir and opens in the bottom portion thereof; while the heating-pipe is preferably obstructed as at 10, in its upper end, and is likewise extended downward through the cavity of the reservoir and connects with the elbow 11 formed or attached inside the case preferably near the bottom thereof, which elbow is provided with a channel 12 communicating above with the heating-pipe and opening outward through the side wall of the case.

The sight-feed line is composed of the sight-glass 13 mounted and communicating between the valve-fitting 14 and the collecting-chamber 15, respectively formed or attached above and below on the side of the case. The valve opens from the upper portion of the reservoir, and is provided with the grease nipple 16 depending in the sight-glass, and the collecting-chamber 15 is formed around the opening of the elbow channel, in which opening is secured the steam nipple 17 which preferably terminates inside the lower end of the sight-glass and discharges directly across the line of the same and into and along the feed-pipe toward the supply-line. The feed-pipe 15^a is formed or attached on the collecting-chamber 15 and is virtually a lateral continuation thereof, and this pipe extends to and communicates with the engine supply line. By this construction and arrangement, the oil or grease in the reservoir will be properly heated by the live steam which passes through the heating-pipe, and by reason of the water which accumulates in the bottom of the reservoir from the condensing-pipe, the liquid grease passes out

through the sight-feed line in small globules which form drops on the grease nipple in the usual manner; and each drop falls freely downward through the sight-glass into the hot steam discharge from the heating-pipe, and is not only driven thereby through the feed-pipe into the engine-supply line, but is heated to the proper temperature and is also thoroughly atomized so that it will completely vaporize in the live steam in the supply line, and will therefore most efficiently lubricate all parts of the engine.

It is evidently not essential that the steam nipple shall terminate inside the lower end of the sight-glass for it may be extended beyond the same as in the modified form 17^a shown in Fig. 3, in which event the suction caused by the hot discharge serves to siphon the dropping grease along the feed-pipe until the same passes in front of the nipple, whence it is sprayed into the supply-line as before; but the shorter nipple form of the device is preferred for the reason that each drop of grease is more forcefully and directly impinged as it falls freely into the hot steam discharge and is therefore more positively and certainly heated and atomized.

What I claim is—

1. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the upper part of the reservoir and opening downward into the collecting-chamber, a condensing-pipe opening into the reservoir, and a heating-pipe extending through the reservoir and arranged to discharge into the collecting-chamber and along the feed-pipe across the opening of the drop-feed line.

2. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the upper part of the reservoir and opening downward into the collecting-chamber, a condensing-pipe opening into the reservoir, and a heating-pipe extending through the reservoir and arranged to discharge into and along the feed-pipe.

3. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the upper part of the reservoir and opening downward into the collecting-chamber, and a heating-pipe extending through the reservoir and arranged to discharge into the collecting-chamber and along the feed-pipe across the opening of the drop-feed line.

4. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the upper part of the reservoir and opening

downward into the collecting-chamber, and a heating-pipe extending through the reservoir and arranged to discharge into and along the feed-pipe.

5. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the reservoir and opening downward into the collecting-chamber, and a heating-pipe extending through the reservoir and arranged to discharge into the collecting-chamber and along the feed-pipe across the opening of the drop-feed line.

6. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the reservoir and opening downward into the collecting-chamber, and a heating-pipe extending through the reservoir and arranged to discharge into and along the feed-pipe.

7. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the reservoir and opening downward into the collecting-chamber, and a pipe arranged to discharge steam into the collecting-chamber and along the feed-pipe across the opening of the drop-feed line, whereby the free drops of the lubricant are impinged by the steam as they fall into the collecting-chamber.

8. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the upper part of the reservoir and opening downward into the collecting-chamber, a condensing-pipe opening into the reservoir, and a heating-pipe extending through the cavity of the reservoir and arranged to discharge into the collecting-chamber and along the feed-pipe across the opening of the drop-feed line.

9. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the upper part of the reservoir and opening downward into the collecting-chamber, a condensing-pipe opening into the reservoir, and a heating-pipe extending through the cavity of the reservoir and arranged to discharge into and along the feed-pipe.

10. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the upper part of the reservoir and opening downward into the collecting-chamber, and a heating-pipe extending through the cavity of the reservoir and arranged to discharge

into the collecting-chamber and along the feed-pipe across the opening of the drop-feed line.

5 11. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine supply-line, a drop-feed line leading from the upper part of the reservoir and opening
10 a heating-pipe extending through the cavity of the reservoir and arranged to discharge into and along the feed-pipe.

12. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading
15 from the collecting-chamber to the engine supply-line, a drop-feed line leading from the reservoir and opening downward into the collecting-chamber, and a heating-pipe

extending through the cavity of the reservoir and arranged to discharge into the collecting-chamber and along the feed-pipe across the opening of the drop-feed line. 20

13. A lubricator including a reservoir, a collecting-chamber, a feed-pipe leading from the collecting-chamber to the engine
25 supply-line, a drop-feed line leading from the reservoir and opening downward into the collecting-chamber, and a heating-pipe extending through the cavity of the reservoir and arranged to discharge into and
30 along the feed-pipe.

FRANK LOWRY.

Witnesses:

WM. R. RHODES,
RUTH A. MILLER.