

W. D. PLUE.
SIGHT FEED LUBRICATOR.
APPLICATION FILED AUG. 28, 1911.

1,066,048.

Patented July 1, 1913.

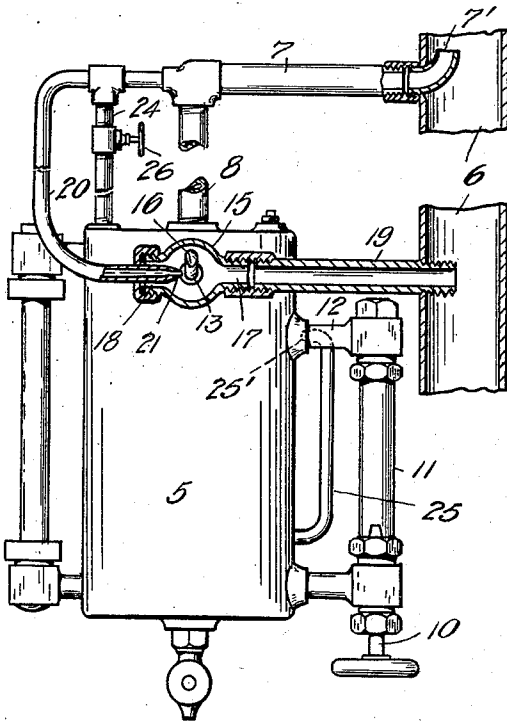


FIG. 1

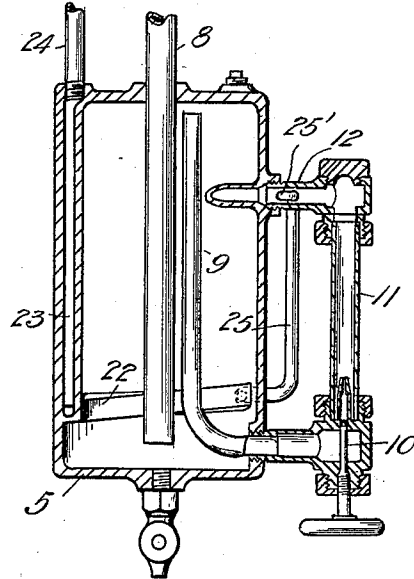


FIG. 2

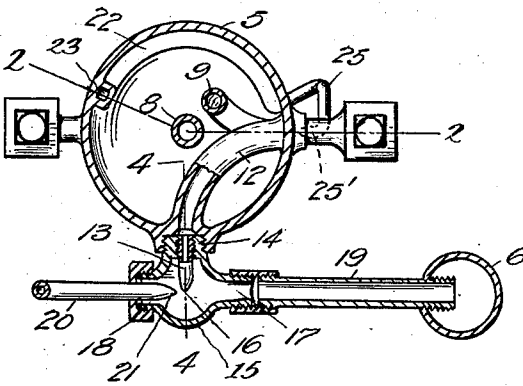


FIG. 3

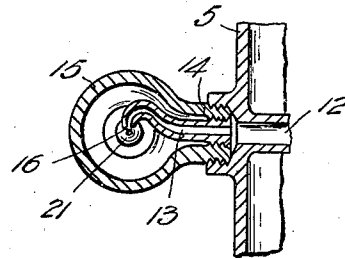


FIG. 4

WITNESSES:

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SIGHT-FEED LUBRICATOR.

1,066,048.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM D. PLUE, a citizen of the United States, residing at Rainier, in the county of Columbia and State of Oregon, have invented certain new and useful Improvements in Sight-Feed Lubricators, of which the following is a specification.

The object of this invention is to provide a means whereby the oil from a sight-feed lubricator may be delivered in an atomized condition to the steam supply for an engine-cylinder, or the like, to commingle with the steam and thereby be carried in a comminuted form to every portion of the cylinder which is exposed to the steam to afford a thorough lubrication of the affected parts.

Ordinarily, the oil flows from the lubricator into the steam pipe and thence flows into the bottom of the cylinder and it has been found that but little of the lubricant is applied to the upper portions of the cylinder and particularly so where the heavier and better grades of oils are used.

According to the present invention, the oil is delivered as a spray into the engine steam supply pipe by means of a steam jet to cause the steam in such pipe to become permeated with oil and in which state the oil laden steam passes to a cylinder to perform its duty as well as serving as a vehicle for conveying the oil against all surfaces needing lubrication.

The invention is illustrated in the accompanying drawings wherein—

Figure 1 is an elevational view of a sight-feed lubricator with my invention applied thereto and shown partly in section. Fig. 2 is a transverse vertical section taken through 2—2 of Fig. 3. Fig. 3 is a horizontal section. Fig. 4 is a detail sectional view on line 4—4 of Fig. 3.

The reference numeral 5 designates the oil reservoir of a sight-feed lubricator, and 6 is the main steam pipe by which an engine is supplied with the power agent. A branch pipe 7 having a curved end 7' extending in to said main pipe and with its mouth directed oppositely to the flow of steam through the latter, connects the main pipe with a tube 8 and through which water, derived from condensed steam, is delivered to the bottom of the reservoir 5. As the water is thus furnished, it displaces a small quantity of oil which flows from the top of the reservoir down a tube 9 and, after passing

by a regulating valve 10, ascends through a body of water contained in a glass tube 11. From this tube the oil proceeds by a conduit 12 into and through a nozzle 13 which extends through the side connection 14 of a T-fitting 15. As best shown in Fig. 3, said nozzle is formed to a curved shape with the nozzle tip 16 directed downwardly and terminating in proximity to the axis of the aligned end openings 17 and 18 of the T-fitting. The end connection 17 of this fitting is connected with the aforesaid main steam pipe 6 by a pipe 19 which, as shown in Figs. 1 and 3, extends a distance into the main pipe so as to discharge the lubricating oil as delivered from pipe 19 at or about the center of the volume of steam passing to the engine. The opening 18 of said fitting is also communicatively connected with the main steam pipe, the present embodiment of the invention illustrating such connection being made by a tube 20 extending from the pipe 7. As illustrated in Figs. 1 and 3, the tube 20 projects into the aforesaid T-fitting and terminates in a reduced end or nozzle 21.

From the foregoing, it is apparent that the connections 7, 20 and 19 constitute a by-pass for steam from the main pipe 6.

For the purpose of rendering the oil within the reservoir 5 fluent in cold weather or where the lubricator is subject to cool drafts tending to make the oil unduly viscid, I provide heating devices for conducting hot steam to within a short distance of the bottom of the lubricator. Such devices consist of a duct 22 disposed within the reservoir near the bottom thereof and having a supply and discharge connection with the main steam pipe 6. Said supply connection comprises a downflow passage 23 formed in the peripheral wall, preferably, of the reservoir and connected by a tube 24 with the tube 20 which communicates with the pipe 7. The outlet connection for the duct 22 is attained through the medium of a tube 25 which desirably enters the conduit 12 to accompany the oil passing therethrough in its progress to the pipe 6. As illustrated, the end of the tube 25 within the conduit 12 is formed with a nozzle end 25' which is directed to correspond with the direction of the flow of the oil and thus assist the movement of the same.

26 indicates a valve in tube 24 for regulating the quantity of steam supplied to the oil heating appliances.

In operation, the oil is delivered from the glass tube to the conduit 12 subject, however, to the office of the steam supplied to the duct 22 where the latter is used. From the conduit 12 the oil is delivered as drops which are suspended from the nozzle tip 16 within the referred to by-pass and in the path of the steam emitted from the nozzle 21 and whereby the oil is dislodged from such nozzle-tip and carried into the main pipe 6 in the shape of spray to commingle with the steam therein. The function of the curved end 7' of the pipe 7 is to entrain a portion of the current of steam passing through pipe 6 and utilize the momentum of the steam to effect a stronger delivery through the nozzle 21 and also of the nozzle 25' when the latter is employed.

What I claim as my invention, is—

1. The combination with a main steam pipe, a lubricator, and a sight feed tube carried by the lubricator and communicating at its lower end with the lubricator, of a T-fitting carried by the lubricator, a conduit within the lubricator establishing communication between the T-fitting and the upper end of the sight feed tube, a nozzle in the

conduit extending into and arranged to discharge within the T-fitting, a branch pipe extending from the main steam pipe into said T-fitting, and an oil feed pipe leading from the T-fitting to and discharging into the main steam pipe.

2. In combination with a main steam pipe, a lubricator, and a sight feed lubricator communicating at its lower end with the lubricator, of a fitting tapped in the lubricator, a conduit within the lubricator establishing communication between the fitting and the upper end of the sight tube, a branch pipe connected at one end with the steam line and having its other end discharging into the fitting, an oil feed pipe leading from the fitting to the steam line, the inlet of said oil feed pipe being in line with the outlet of said branch pipe, and a nozzle in said conduit extending into the fitting and discharging therein on the line of discharge of said branch pipe.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."