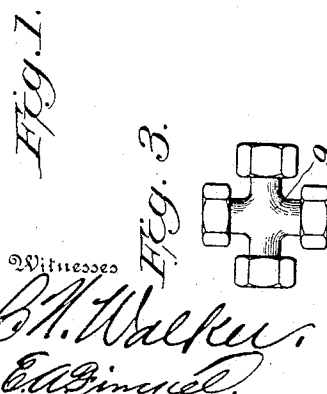
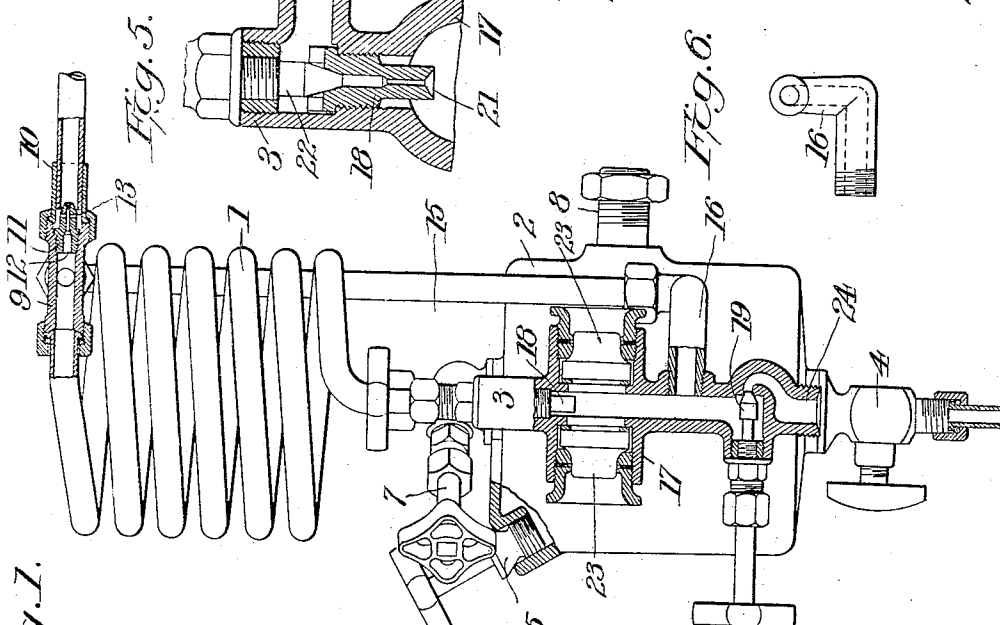
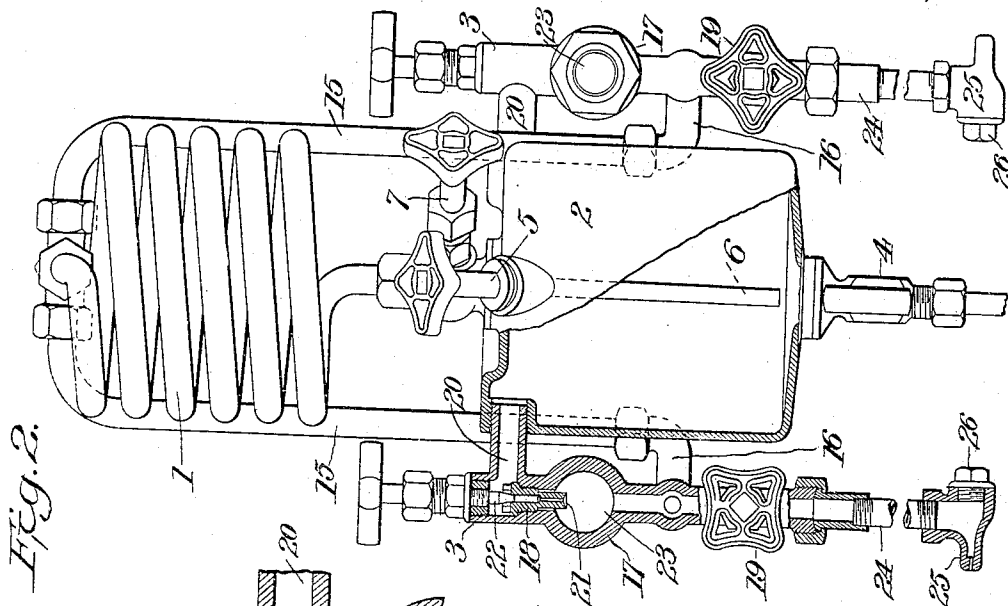


F. W. EDWARDS.
DOWN-DROP SIGHT FEED LUBRICATOR.
APPLICATION FILED DEC. 7, 1908.

948,301.

Patented Feb. 1, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

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DOWN-DROP SIGHT-FEED LUBRICATOR.

948,301.

Specification of Letters Patent.

Patented Feb. 1, 1910.

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To all whom it may concern:

Be it known that I, FRANK W. EDWARDS, a citizen of the United States, residing at Logansport, in the county of Cass and State of Indiana, have invented a certain new and useful Improvement in Down-Drop Sight-Feed Lubricators, of which the following is a full, clear, and exact description.

The object of this invention is to provide a down-drop sight-feed for lubricators, particularly those which are adapted for using heavy crude oils, black oils, heavy animal oils, and lubricating compounds, and which may be installed in any desired lubricating system for delivering the lubricant to the bearing or wearing surfaces of stationary or locomotive engines, such as the journal bearings, shaft bearings, wheel bearings and wheel flanges, and also railway rails.

The invention consists of a lubricator of the character described, having a condenser, preferably in the form of a coil pipe, in the boiler connection of which is interposed a choke-plug or reducer having a longitudinal passage and a number of transverse intersecting passages so as to preserve a free passage for the boiler steam into the condenser and minimize the liability of the passage being completely stopped, and also serving as a strainer to prevent the entrance of particles of dirt into the condenser and thence into the oil reservoir. This condenser is connected with an oil reservoir having any desired number of sight-feed devices embodying the down-drop principle, and into which sight-feed devices boiler steam is admitted below the observation glasses, and of course, below the feed-tips; a closing valve being arranged below the steam connection in each sight-feed device so that it is possible to prevent counter-pressure from backing up into the sight-feed pocket, and overheating of this pocket is precluded, and whereby the oil-delivery passage may be closed and steam admitted to the pocket to blow dirt out of the feed-tip whenever that is necessary.

The invention consists also in combinations of parts including the particular features just above mentioned and others.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a side elevation with some parts in section, and Fig. 2 is a front elevation, also

showing some parts in section, and the two figures illustrating one embodiment of the invention as used in a piping system for lubricating the frictional surfaces on driver or other separate wheels. Fig. 3 is a top plan view of the union or coupling interposed between the condenser, the steam supply and the steam circulating pipes. Fig. 4 is a longitudinal section, on a larger scale, illustrating the reducer or choke-plug shown in Fig. 1. Fig. 5 is a vertical sectional elevation on a larger scale illustrating one of the oil feed-tips shown in Figs. 1 and 2. Fig. 6 is a plan view of the double elbow in the steam circulating pipes.

1 designates the condenser, 2 the oil reservoir, 3 down-drop sight-feed devices mounted on the oil reservoir, 4 a draining-valve, 5 a filling-plug, 6 a condensation admission pipe for conducting the water of condensation into the bottom of the oil reservoir, 7 the valve controlling such admission, and 8 the lug for mounting the oil reservoir, all which parts may be of approved construction to receive and incorporate the present improvements which I will proceed now to describe.

As to the condenser, it is to be noted that its upper end is supplied with a cross coupling 9, shown detached in Fig. 3; and in the arm to which the boiler connection 10 is fitted is screwed a plug 11, having a longitudinal passage 12 of two diameters, the larger diameter being nearer the condenser, and this passage is intersected by a number of lateral passages 13 arranged nearer the boiler connection. The plug is provided with an exterior flange or collar 14 to fix its location in the coupling. The function of this plug is to make it difficult to completely stop the flow of steam from the steam connection, and its further function is to prevent particles of dirt from entering the condenser or any part of the lubricator. Thus it serves as a reducer or choke and is so referred to herein. The condenser pipe is connected to the coupling in line with the reducer or choke.

From the lateral branches of the coupling 9 extend the steam circulating pipes 15 which terminate in double elbow pipes 16 which open in the respective sight-feed devices some distance below the sight-feed pockets 17 and feed-tips 18 therein and above the oil-delivery controlling-valves 19, so that the counter-pressure is prevented

from backing up into the sight-feed pockets, and overheating of said pockets is avoided. By this arrangement of the steam circulating pipes below the pockets and oil feed-tips and above the valves 19, it is possible when said valves are closed to turn back full steam pressure into the feed pockets and thereby blow dirt back from the feed-tips into the reservoir. Furthermore, this arrangement does not disturb the formation of the oil globules on the feed-tips. The admission of steam below the feed tips obviates the breaking up of the globules and so prevents the oil from clouding the glasses. The steam, when the valves 19 are closed, forces both the condensation and the dirt back into the oil-reservoir, and, of course, when these valves are open, they furnish the natural outflow for both steam and condensation. Thus the steam never beclouds the glasses. The connections 16 are made as double elbows, and this admits of bringing the steam circulating pipes 15 close to the sides of the reservoir and away from the line of vision of the sight-feeds. The sight feed-tips 18 are placed above the feed pockets 17 and next to the outlets 20 of the reservoir. Each feed-tip has its discharge end reamed out, as at 21, so as to accumulate a large drop of oil, and a valve 22 is interposed between each feed-tip and its supply pipe 20. The sight-feed pockets are equipped with oppositely arranged thick solid observation glasses 23, suitably arranged, although the invention is not limited to the style of observation glasses. The oil may be delivered to any desired part or parts, and as one illustration, I have shown the oil delivery pipes 24 as provided with nozzles 25 having screw-caps 26. By the use of the caps 26 access may be had to the interior of the nozzles for cleaning out these nozzles without disconnecting the nozzles from the pipes 24. After the reservoir has been filled with the desired lubricant, it is closed up tight. Steam from a suitable source is turned into the steam connection 10. The condenser valve 7 is opened to admit the water of condensation into the pipe 6, whence it falls into the bottom of the reservoir and being heavier than the lubricant displaces it upwardly, whence it escapes through the supply pipes 20 and around the feed valves 22 and into the feed tips, whence it falls in drops into the feed pockets. The oil delivery valves 19 now being opened, the lubricant passes to the parts to be lubricated. The pressure of steam coming down through

the steam circulating pipes insures the delivery of the lubricant to the parts to be lubricated.

What I claim is:—

1. In a down-drop sight-feed lubricator, the combination with a condenser, steam circulating pipes and a steam supply pipe, of a coupling connecting the condenser and all of said pipes at their steam-receiving ends, and an always-open choke-plug arranged therein between the steam supply pipe on one side and the condenser and the circulating pipes on the other side.

2. In a down-drop sight-feed lubricator, the combination of a condenser, steam circulating pipes and a steam supply pipe, of a coupling connecting the condenser and pipes at their respective inlets, a stationary plug arranged in said coupling at its inlet and perforated longitudinally throughout its length and transversely at its steam receiving end.

3. In a down-drop sight-feed lubricator, the combination of a tubular condenser, steam circulating pipes and a steam supply pipe, of a coupling connecting the condenser and pipes at their respective inlets and next to the supply pipe, and a stationary plug arranged in said coupling at its inlet end and perforated longitudinally throughout its length and transversely at its steam receiving end.

4. In a down-drop sight-feed lubricator, the combination of an oil-reservoir, a condenser, one or more sight-feed devices, each having a sight-feed pocket, an oil-delivery valve below each pocket, and a steam circulating pipe for each sight-feed device opening into the sight-feed device between its sight-feed pocket and oil-delivery valve.

5. In a down-drop sight-feed lubricator, the combination of a condenser, a reservoir, sight-feed devices each having a sight-feed pocket, an oil-delivery valve below each pocket, and steam circulating pipes terminating in double elbow pipes which open into the sight-feed devices below the sight-feed pockets and between such sight-feed pockets and the oil-delivery valves, whereby the steam circulating pipes may be brought close to the sides of the reservoir and away from the line of vision of the sight-feeds.

In testimony whereof I have hereunto set my hand this 4th day of December A. D. 1908.

FRANK W. EDWARDS.

Witnesses:

FRANK W. FURRY,
WILLIAM S. FURRY.