L. R. HOFFMAN.

LUBRICATOR.

APPLICATION FILED OCT. 26, 1907.

900,280. Patented Oct. 6, 1908.

Fig. 2.

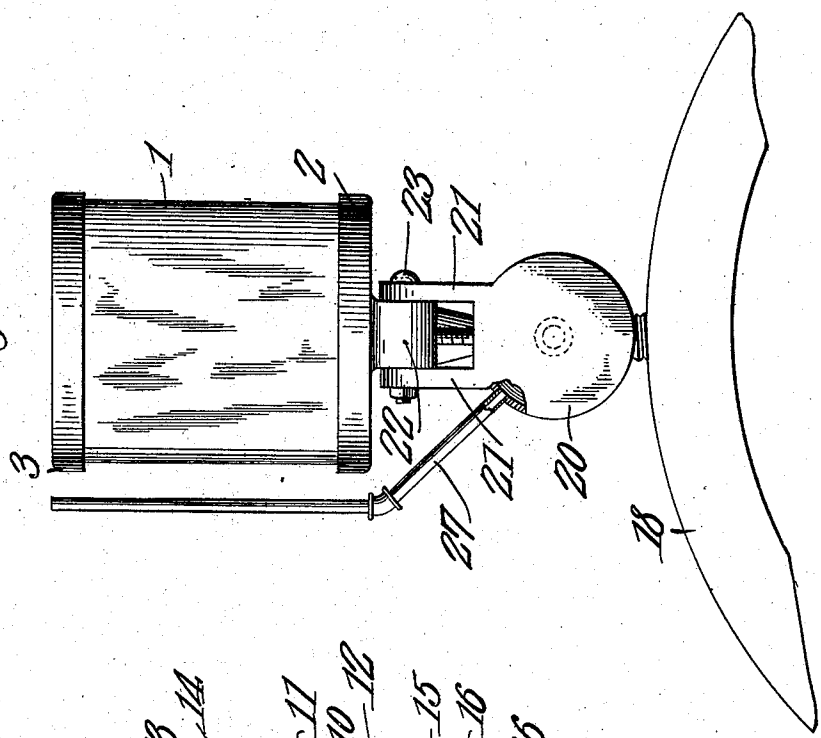
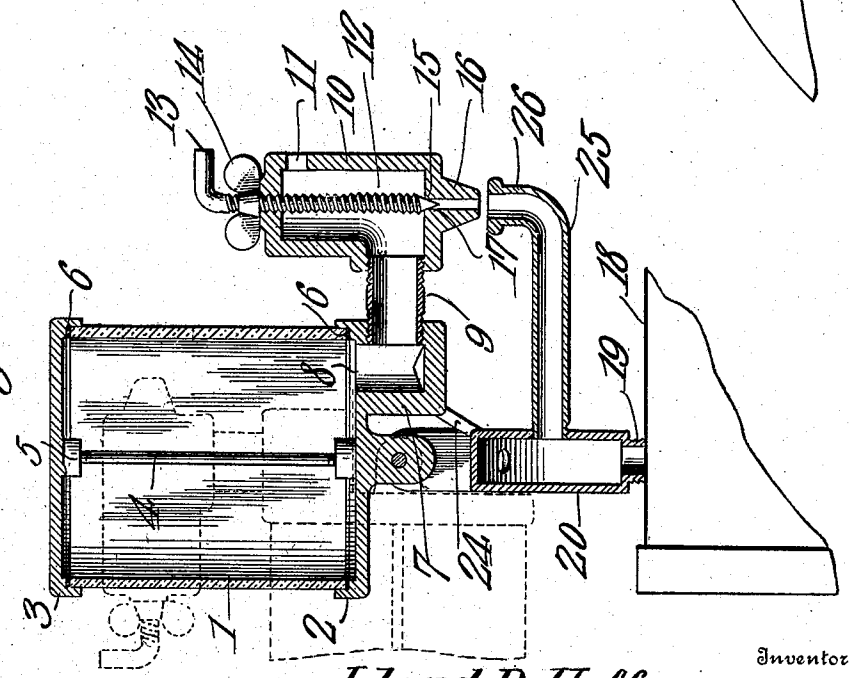


Fig. 1.



Witnesses

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LUBRICATOR.

No. 900,280. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed October 26, 1907. Serial No. 399,376.

To all whom it may concern:

Be it known that I, LLOYD R. HOFFMAN, a citizen of the United States, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented a new and useful Lubricator, of which the following is a specification.

This invention has reference to improvements in lubricators, and its object is to provide a lubricator particularly adapted for the feeding of lubricants to the pistons of explosive engines.

The invention comprises, essentially, a lubricant holder which may be of the ordinary glass cell type to which is connected a chamber into which latter the lubricant (oil) gravitates and from which the oil is fed drop by drop, or faster, if desired, by means of a suitable needle valve. The lubricant reservoir is supported upon a casing inclosing a chamber into which the oil from the sight feed is conducted, and from which chamber the oil flows directly to the piston. Leading off from this chamber is a blow-off pipe or opening through which any products of explosions leaking past the packing rings and entering the chamber from which the oil reaches the piston will find an easy escape. Furthermore, there is provision for the ready filling of the oil reservoir by hinging the latter so that the needle valve chamber may be raised above the reservoir and oil be then introduced through a suitable orifice therein, and this hinging of the reservoir likewise provides a ready means for stopping the flow of oil from the reservoir without disturbing any adjustments, besides providing an obtrusively visible evidence of the fact that the lubricant container is in the inoperative position.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming part of this specification, in which drawings,

Figure 1 is a central section through the improved lubricator. Fig. 2 is an elevation of the same with parts shown in section.

Referring to the drawings, there is shown a receptacle or container 1 which may be a glass cylinder resting on a base 2 and closed at the other end by a cap 3 with a connecting rod 4 interior to the cylinder 1 and screwing into bosses 5 on the interior of the base and cap, respectively. Washers 6 of rubber or other suitable material make oil-tight joints between the glass cylinder 1 and the base and cap. As thus far described, the lubricator may be of the ordinary construction found on the market.

Cast on the base 2 is a small supplemental container 7 into which an opening 8 in the base leads, so that oil contained within the receptacle 1 will gravitate into this supplemental container. Tapped into the container is a nipple 9 receiving at the other end a casing 10 preferably cylindrical in form. When the lubricant container 1 is in operative position, the supplemental container 7 is immediately below the base, and the nipple 9 projects horizontally while the longitudinal axis of the casing 10 is vertical, all as shown in Fig. 1. The nipple 9 enters the lower end of the casing 10 and on the opposite side of the casing near the upper end there is an orifice 11.

Extending longitudinally and axially through the casing 10 is a screw rod 12 passing through a suitable threaded opening in the center of the top end of the casing, and above the casing the rod terminates in a handle 13 by means of which it may be rotated, and between this handle and the top of the casing, the rod carries a wing nut 14. The lower end of the rod 12 is formed into a conical valve 15 adapted to enter the upper end of a small axial passage 16 formed in a boss 17 on the lower end of the casing 10. Now, when the receptacle 1 contains oil, the latter will gravitate into the casing 10 and, when the valve 15 is opened, the oil will flow through the conduit or passage 16 in quantities commensurate with the opening of the valve, and this valve may be regulated to permit the oil to drop at slow intervals, or, if needed, to run in a stream through the passage 16. Whatever the adjustment of the valve, it may be maintained in the adjusted position by the wing nut 14, which may be screwed down into engagement with the top of the casing 10.

The lubricator of this invention is designed more particularly for use on the cylinders of explosive engines for supplying cylinder oil to the pistons of such engines. For this reason, there is conventionally shown in the drawings a gas engine cylinder 18. At an appropriate point, this cylinder is tapped to receive a nipple 19 formed on one side of a drum casing 20, the latter being preferably in the form of a flat cylinder, though it may be otherwise

shaped. Formed on the periphery of the drum 20 opposite the nipple 19 are two spaced ears 21 between which is pivoted a suitable lug 22 formed on the exterior of the base 2 at its center. A bolt 23 serves to pivotally connect the lug 22 between the ears 21. The drum 20 between the ears 21 carries a stop pin 24 arranged to engage the supplemental container 7 when the main container 1 is in the upright position shown in Fig. 1. When the lubricator is in the operative or upright position, it is there held by the overbalancing action of the casing 10, which projects to one side of the main container 1, and this overbalancing action of the container 10 is resisted by the stop pin 24.

Tapped into one side of the drum 20 at about its middle is a pipe 25 having one end bent into an elbow 26 so that the open end of the pipe is immediately below the lower end of the passage 16. Leading from the periphery of the drum 20 in the upper portion thereof is a small pipe 27 having its upper end carried to a convenient height and there open. Now, let it be presumed that the container 1 is full, or nearly full, of oil. This oil will flow down into the supplemental container 7 and through the nipple 9 into the casing 10, air returning through said nipple into the container 1 to replace the oil that is outflowing. As soon, however, as the oil in the supplemental container 10 reaches the top of the nipple, the flow of oil outward ceases. Now, on opening the valve 15 for an appropriate distance, the oil finds its way past the valve and through the passage 16 in quantities commensurate with the opening of the valve and then passes into the pipe 25 from which the oil flows into the drum 20 and through the nipple 19 into the cylinder 18, and so serves to lubricate the piston in said cylinder in the usual manner.

Now, it transpires at times in explosive engines that the exploding gases blow out past the packing rings and thus sometimes cause a regurgitation of the lubricating oil. This, in the structure such as shown in the drawings where the sight feed is open, would tend to forcibly eject oil through the receptive end of the pipe 25, and the oil thus ejected would be scattered over the machinery. This is, however, prevented by the pipe 27 which provides a path for the gases out of the direct line thereof as they enter through the nipple 19, and relieving the pipe 25 from the blast of the gases so that the oil coming from the main reservoir 1 will continue to flow through said pipe 25 without interruption. Now, in order to stop the flow of oil from the lubricator, it is turned on the pivot bolt 23 until the reservoir 1 is horizontal with the casing 10 uppermost. Under these conditions, any oil that may be in the casing 10 gravitates into the main reservoir 1. When the lubricator is in this inoperative position, then lubricating oil may be poured through the orifice 11 into the casing 10 and will readily find its way through the nipple 9 into the main reservoir 1. It is by this means that the main reservoir 1 is filled with lubricating oil.

Moving the lubricator from the vertical to the horizontal position to render it inoperative also renders it obtrusively evident to the eye that it is inoperative, and it is seen at a glance whether or not the lubricator is in position to supply lubricant when the engine is running, nor is the operator liable to forget to place the lubricator in working condition.

I claim:—

1. In a lubricator, a pivotally mounted main receptacle, a supplemental receptacle below the same in free communication therewith, another receptacle connected at its lower end to the supplemental receptacle and extending above the point of connection, there being an outlet at the lower end of the third receptacle, a valve for said outlet, and means for conducting lubricant therefrom to the parts to be lubricated.

2. In a lubricator, a main receptacle for the lubricant, another receptacle connected to the main receptacle and extending above the point of connection, said second-named receptacle being provided with a freely open orifice near its upper end and a lubricant outlet at the lower end, and a valve in the said second receptacle for the lubricant outlet for regulating the flow of lubricant therefrom.

3. In a lubricator, a main receptacle pivotally mounted, another receptacle connected to the main receptacle and extending when in operative position above the point of connection and also provided above said point of connection with an orifice, a controlling valve in the second-named receptacle, and means for supporting the lubricator in an operative position with the second-named receptacle at one side thereof and in an inoperative position with the second-named receptacle uppermost.

4. A lubricator for explosive engines comprising a chamber connected with the interior of the engine cylinder, an oil duct leading to said chamber and open at the end remote therefrom, an escape pipe leading from the chamber to the atmosphere for diverting the exploded gases from the oil duct, a lubricant reservoir hinged to the top of the chamber and provided with a lubricant outlet in operative relation to the open end of the oil duct when the reservoir is in active position, and a governing means for controlling the flow of oil from the reservoir to the duct.

5. A lubricator for gas engines compris-

ing a lubricant receptacle, a chamber in direct communication with the interior of the cylinder of the gas engine, an oil duct connected at one end to the chamber and at the other end in operative relation to and spaced from the lubricant outlet from the lubricant receptacle but not physically connected therewith, said space between the lubricant outlet and the open end of the duct constituting a sight feed for the lubricant, and a vent leading from the chamber to the atmosphere for diverting exploded gases from the lubricant receptacle.

6. In a lubricator for explosive engines, a chamber connected with the interior of the engine cylinder, an oil duct leading to said chamber out of line with the connection from the chamber to the engine cylinder, and an escape pipe connected to the chamber also out of line with the connection between the chamber and the engine cylinder and leading to the atmosphere.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

LLOYD R. HOFFMAN.

Witnesses:
A. A. HOFFMAN,
P. A. WILBERT.