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VAPOR LUBRICATOR FOR MOTOR VEHICLES

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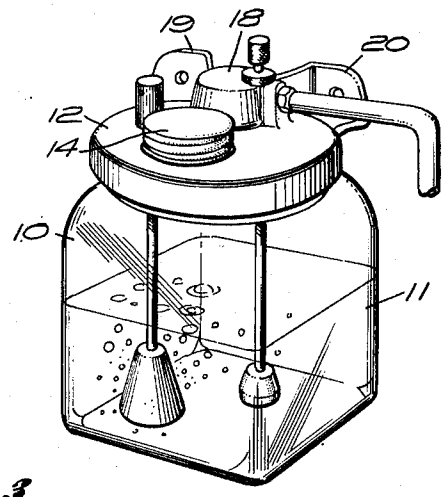


Fig. 1

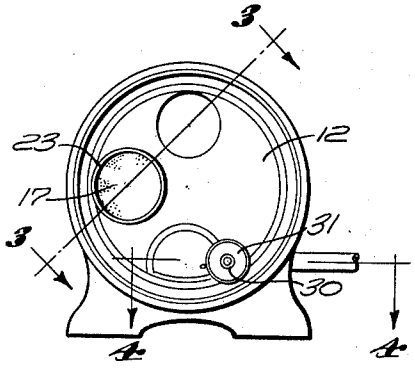


Fig. 2

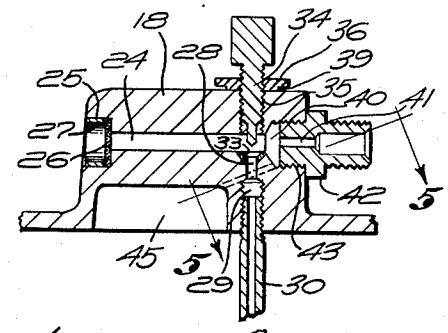


Fig. 4

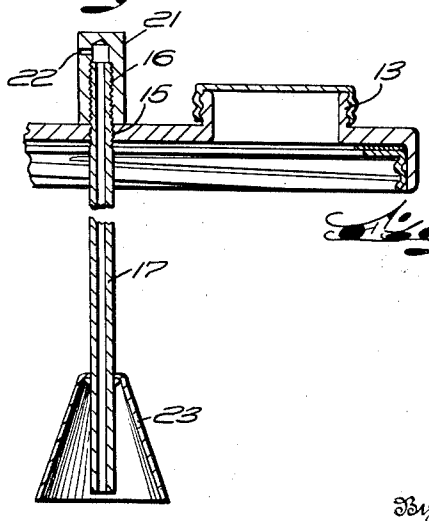
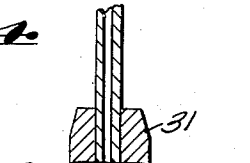
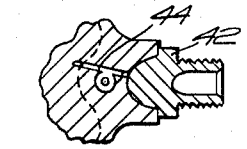


Fig. 3

Fig. 5





Inventors
William H. Taber
Albert Taber

By Nathaniel Fruchtt
Attorney

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VAPOR LUBRICATOR FOR MOTOR VEHICLES

William H. Taber and Albert Taber, Providence, R. I., assignors to Automotive & Marine Products Corporation, a corporation of Massachusetts

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5 Claims. (Cl. 123—196)

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The present invention relates to lubrication devices for internal combustion engines, and has particular reference to a novel top cylinder and overhead valve lubricator construction.

The principal object of the invention is to provide a lubricator which sprays finely dispersed oil to the upper working parts of an engine.

Another object of the invention is to provide a top cylinder lubricator which supplies a regulated volume of vaporized oil for suction intake to the intake manifold of the engine.

Still another object is to provide a top cylinder lubricator which mixes intake air and oil vapor, enriched with additional oil vapor, to form an oil-laden spray for intake into the engine cylinders.

A further object of the invention is to provide a manually adjustable valve mechanism for controlling the proportion of oil vapor to air in the oil-laden air intake stream.

An additional object of the invention is to provide a top cylinder and overhead valve lubricator with a manually adjustable valve mechanism for controlling the proportions of oil vapor and air in the oil-laden spray drawn for intake into the intake manifold.

Another object of the invention is to provide an improved air inlet turbulator for replacing the lubricating oil supplied to the inlet manifold with air and simultaneously agitating the lubricating oil in the lubricator to thoroughly disperse a contained solvent agent in the agitated oil.

With the above and other objects and advantageous features in view, the invention consists of a novel arrangement of parts more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more specifically defined in the claims appended thereto.

In the drawings:

Fig. 1 is a perspective view of an illustrative oil spray lubricator embodying the invention;

Fig. 2 is a bottom plan view of the cover assembly;

Fig. 3 is an enlarged sectional detail on the line 3—3 of Fig. 2;

Fig. 4 is an enlarged sectional detail on the line 4—4 of Fig. 2; and

Fig. 5 is an enlarged sectional detail on the line 5—5 of Fig. 4.

It has been found desirable to provide a top cylinder lubricator for an automobile engine which supplies vaporized oil to spray over the upper cylinder parts and thus lubricates the valves, reduces carbon formation, prevents gummed up piston rings and scored cylinder walls, and quiets the operation of the valve assembly. To this end, I utilize a container which is mounted under the engine hood and which is periodically filled with light lubricating oil, the container having an inflow air passage into which oil is entrained in a fine dispersion, and an oil spray mixture outflow conduit which is connected with the engine manifold; and I provide the container with a filter for the inflowing air and with a manually adjustable valve for regulating the amount of oil vaporized by the inflowing air. I further provide an auxiliary oil vapor by-pass channel which continually supplies a fixed amount of oil-laden air to be drawn into the outflow conduit, whereby a small volume of oil vapor is always drawn into the engine cylinders, even when the oil vapor adjustment valve is shut, and I also utilize an air inlet to the lubricator in the form of a turbulator which supplies replacement air for the withdrawn lubricating oil and also agitates the lubricating oil to thoroughly disperse a solvent ingredient thereof throughout the oil.

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The use of upper cylinder lubricating oil in the form of a finely dispersed spray provides a maximum penetrative effect and carries the oil to the valve stem and valve guide, and in addition acts as a coolant for that portion of the valve stem which extends beyond the valve guide and is subject to the most intense heat. the solvent usually added to the lubricating oil eliminating carbon formation. Since the valve stem in its travel in the valve guide is subjected to changing temperatures, including oil temperature of approximately 250 degrees F., water temperature of approximately 180 degrees F., and combustion gas temperature of approximately 2100 degrees F., there is a variance in the rate of expansion of the valve stem which is excessive beyond the valve guide and slows the valve action. The cooling effect of the oil-laden air stream serves to reduce the high temperature and the rate of expansion as well as to eliminate friction, and thus improves the valve operation and measurably increases the power output with decreased consumption of fuel.

Referring to the drawings, the novel lubricator 10 includes a container base 11 which is preferably of glass or other suitable transparent material and which has a threaded neck to receive a correspondingly threaded metal cover 12. The cover 12 has an upstanding threaded boss 13 provided with a removable threaded cap 14, and has a threaded opening 15 through which the

correspondingly threaded upper end 16 of an air inlet tube 17 extends, and has an upstanding vaporizing housing 18. Two rearwardly extending brackets 19 and 20 are provided for attaching the lubricator to the front wall of an automobile panel or the like, the brackets being preferably formed integral with the cover.

A closure cap 21 is removably mounted on the upper end 16 of the air inlet pipe 17, and has a wall opening 22 through which air may freely enter into the base 11 of the container, a conical turbulator 23 being provided at the base of the tube 17 to thoroughly disperse inflowing replacement air into the oil in the container base, which is periodically replenished through the upstanding boss 13, and thus agitate the oil in the container to spread a contained solvent agent and prevent any settling of the solvent.

The vaporizing housing 18, see Fig. 4, includes an elongated air inflow passageway 24 which is enlarged at its outer end as indicated at 25 to receive a dust screen 26, securely held in place by a pressed in lock ring 27. An oil inlet duct 28 opens into the air passageway 24 from a threaded bore 29, into which the correspondingly threaded upper end of an oil tube 30 is received, the lower end of the oil tube having a base spacer 31 with a depending edge 32 which ends below the end of the oil inlet tube 30 and is spaced at a desired clearance above the bottom of the base 11 to provide a narrow annular oil flow inlet into the oil tube. The upper end of the oil inlet 28 is formed as a valve seat 33, and a valve 34 is adjustably mounted in a threaded bore 35 in the housing positioned directly above the oil inlet 28 for graduated movement into the oil inlet duct 28, to provide a regulated oil outlet therefrom. A lock ring 36 is threadedly mounted on the valve stem outside the housing 18 and has a narrow depending boss 39 adapted to frictionally engage the upper portion of the mixture housing for securely locking the valve 34 in adjusted position.

The air drawn through the inlet passage 24 by engine suction flows directly across the oil inlet 28 and draws up oil which becomes finely dispersed therein, the oil which is drawn up being initially aerated by the inflow of air through the tube 17 and its thorough dispersion into the oil through the turbulator 23. The mixture enters a mixture chamber 40 and exits from the mixture chamber through an outflow passage 41 in a connecting nipple 42 which is threadedly mounted in a bore 43 in axial alignment with the air passageway 24.

An auxiliary or bypass passageway 44 is also provided in the vaporizing housing 18, and extends from a suitable dome 45 in the underside of the head 12 to bypass the oil inlet passage 28 and directly communicate with the mixture chamber 40. The bypass passageway provides a continuously open conduit for drawing a constant supply of oil-laden air from the lubricator 10, to provide a minimum oil vapor flow and enrich the mixture of air from the passageway 24 and dispersed oil from the oil inlet pipe 30.

It is thus clear that the improved lubricator provides for a direct inflow of air, which entrains and finely disperses an adjusted volume of lubricating oil, a bypass providing a minimum supply of oil vapor laden air, and that the lubricator may be readily applied to any type of internal combustion engine, whether automotive or stationary, for the purpose described.

Although we have described a specific embodiment of the invention, it is obvious that changes in the size, shape and arrangement of the parts may be made to suit different automotive lubrication requirements, without departing from the spirit and the scope of the invention as defined in the appended claims.

We claim:

1. A top lubricator for an internal combustion engine comprising an oil container base, a cover therefor, air intake means for admitting air to the lower portion of the base, a mixture housing in said cover including an elongated air flow passageway, an oil inlet in the wall of said passageway, an oil supply conduit communicating said oil inlet with the lower portion of the base and supplying oil therefrom for entraining in the air flowing through the passageway, said oil inlet having a valve seat, a valve adjustably mounted in the cover and cooperating with the valve seat for regulating the oil flow from the oil inlet, and an outflow passage for the oil-entrained air.

2. A top lubricator for an internal combustion engine comprising an oil container base, a cover therefor, air intake means depending from said cover for admitting air to the lower portion of the base, a mixture housing in said cover including an elongated air flow passageway, an oil inlet in the wall of said passageway, an oil supply conduit communicating said oil inlet with the lower portion of the base and supplying oil therefrom for entraining in the air flowing through the passageway, said oil inlet having a valve seat, a valve adjustably mounted in the cover and cooperating with the valve seat for regulating the oil flow from the oil inlet, an outflow passage for the oil-entrained air, and a bypass passage to said outflow passage for supplying oil-laden air from the upper portion of the base.

3. A top lubricator for an internal combustion engine comprising an oil container base, a cover therefor, air intake means depending from said cover for admitting air to the lower portion of the base, a mixture housing in said cover including an elongated air flow passageway, said passageway having a dust screen, an oil inlet in the wall of said passageway, an oil supply conduit communicating said oil inlet with the lower portion of the base and supplying oil therefrom for entraining in the air flowing through the passageway, said oil inlet having a valve seat, a valve adjustably mounted in the cover and cooperating with the valve seat for regulating the oil flow from the oil inlet, an outflow passage for the oil-entrained air, and a bypass passage to said outflow passage for supplying oil-laden air from the upper portion of the base.

4. A top lubricator for an internal combustion engine comprising an oil container base, a cover therefor, air intake means depending from said cover for admitting air to the lower portion of the base, said air intake means including a turbulator, a mixture housing in said cover including an elongated air flow passageway, an oil inlet in the wall of said passageway, an oil supply conduit communicating said oil inlet with the lower portion of the base and supplying oil therefrom for entraining in the air flowing through the passageway, said oil inlet having a valve seat, a valve adjustably mounted in the cover and cooperating with the valve seat for regulating the oil flow from the oil inlet, and an outflow passage for the oil-entrained air.

5. A top lubricator for automotive engines comprising an oil container base, a cover therefor, air intake means depending from said cover for

admitting air to the lower portion of the base, said air intake means including a turbulator, a mixture housing in said cover including an elongated air flow passageway, an oil inlet in the wall of said passageway, an oil supply conduit communicating said oil inlet with the lower portion of the base and supplying oil therefrom for entraining in the air flowing through the passageway, said oil inlet having a valve seat, a valve adjustably mounted in the cover and cooperating with the valve seat for regulating the oil flow from the oil inlet, and outflow passage for the oil-entrained air, and a bypass passage to said outflow passage for supplying oil-laden air from the upper portion of the base.

WILLIAM H. TABER.
ALBERT TABER.

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