Oct. 31, 1933. C. D. STOVER 1,933,191

LUBRICATING DEVICE

Filed Oct. 11, 1932

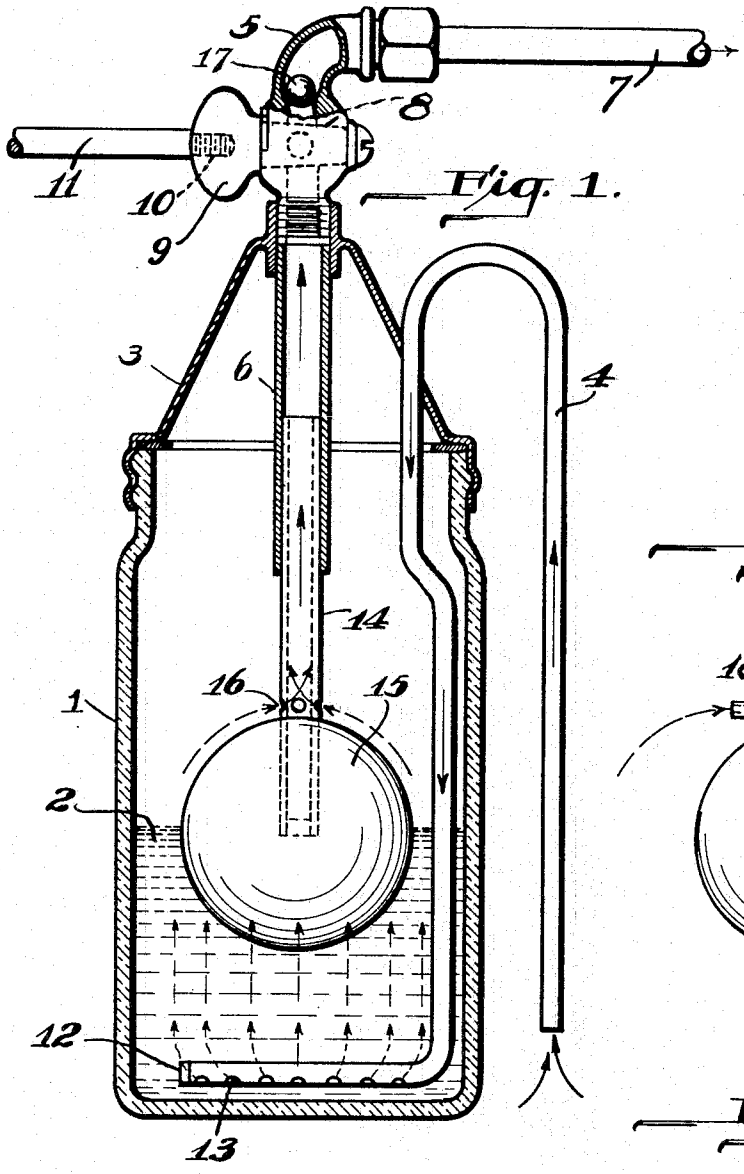


Fig. 1.

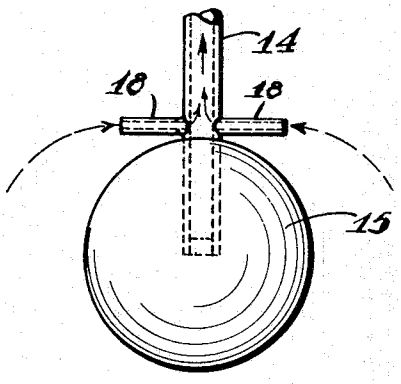


Fig. 2.

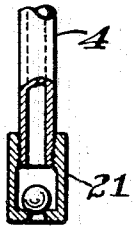


Fig. 5.

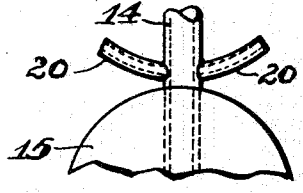


Fig. 3.

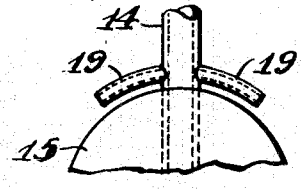


Fig. 4.

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LUBRICATING DEVICE

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3 Claims. (Cl. 261—121)

The invention relates to lubricating devices for combustion engines of the type in which an oily vapor is drawn into the manifold of the engine and distributed past the valves into the cylinders. The invention has for its principal objects the provision of a construction of the kind specified having improved means for insuring that the density or consistency of the vapor supplied shall remain substantially constant regardless of changes of level in the reservoir from which the vapor is supplied; the provision of improved means for preventing injury to the oil container in case of back-firing of the engine and for preventing the oil from being driven from the container when such back-firing occurs; and the provision of improved means whereby the oil container may be filled through the pipe through which the vaporizing air is supplied. Certain embodiments of the invention are illustrated in the accompanying drawing, wherein:

Figure 1 is a vertical section through the apparatus. Figs. 2, 3 and 4 illustrate modifications of one of the details of the apparatus. And Fig. 5 illustrates a modification of another detail.

Referring to the drawing, 1 is a receptacle or container preferably of glass, containing a body of lubricant 2 whose constituents will vary depending on requirements, but of a kind which will vaporize more or less readily when a flow of air is caused to pass therethrough. The container is preferably provided with a screw top 3 of metal, which carries the air inlet pipe 4, the valve fitting 5, and the pipe 6.

The pipe 7 leading from the valve fitting 5 is connected to the inlet manifold of a combustion engine, so that the suction induced in the manifold is applied to this pipe. The valve 8 serves to regulate the suction applied to the container 1, or to cut it off entirely when desired. The thumb piece 9 of the valve, may be provided with a threaded opening 10 adapted to receive a rod 11, and if desired, connections may be supplied for rotating the rod, and thus operating the valve 8 from the dash board of the car to which the apparatus is applied.

The air admission pipe 4 is preferably of inverted U-shape with one leg in the container and the other outside it. The leg lying in the container has its end 12 extended across the bottom of the container and provided with perforations 13. When the lubricant 2 in the container is exhausted, it may be recharged by means of the pipe 4 in a very convenient manner. This is accomplished by placing the end of the pipe into the top of the can containing the lubricant, whereupon the suction applied from the engine through the pipe 7 will cause the lubricant to be drawn from the can into the container 1 until it reaches the desired level therein, which level may be observed due to the fact that the container is of glass. The pipe, therefore, performs the dual function of an inlet pipe and a filler or charging pipe.

Mounted telescopically in the pipe 6 so as to slide freely therein is a pipe 14, which pipe extends at its lower end into a float 15 of cork, or other suitable material. The pipe is provided with a plurality of perforations 16 just above the float, which constitute the inlet, whereby the vapors formed in the container pass to the pipe 6 which constitutes an extension of the suction pipe 7. The valve fitting 5 is provided with a ball check valve 17 which protects the apparatus from injury in case the engine backfires and produces a pressure in the container. Such pressure might act to break the glass container, or to force its contents out through the pipe 4, unless the contingency were guarded against. As indicated in Fig. 5, a substitute arrangement might be provided for preventing the lubricant from being forced from the container in case of back-firing, by placing a check valve 21 on the lower end of the air admission pipe 4. It is preferred, however, to apply the check valve to the fitting 5 for the reason, as above stated, that this prevents the application of any pressure to the glass container.

Figs. 2, 3 and 4 show modified arrangements at the lower end of the telescopic pipe 14 for admitting air thereto as a substitute for the perforations 16. As here shown, admission may occur through the small tubes 18, 19 and 20, which may be either horizontal as shown in Fig. 2, or inclined up and down, as shown in Figs. 3 and 4.

In operation, the suction produced from the engine in the container 1 draws air through the pipe 4 and up through the liquid 2 from the perforations 13, as indicated by the arrows. The bubbles of air, moving upward through the liquid, carry with them a certain amount of the lubricant, the passage of the air thus serving to churn up the lubricant vigorously, and form a body of vapor or finely divided lubricant mixed with air above the surface of such lubricant. In order to insure uniformity in the vapor mixture withdrawn, and in order to withdraw a mixture containing a maximum amount of lu-

bricant, it is desirable to have the point of withdrawal constant with respect to the level of the lubricant in the container, and to have such point relatively close to the surface of the liquid. This result is secured by the use of the float which serves to keep the inlet passages 16 always at the same distance above the level of the lubricant.

What I claim is:

1. In a lubricating device, a receptacle adapted to contain a body of lubricant to be vaporized, an air admission pipe from the atmosphere opening into the lower portion of the receptacle, a suction pipe leading into the receptacle and having a movable extension lying inside the receptacle and provided with an inlet passage, and a float in the receptacle supported by direct contact with the lubricant on its lower side connected to said extension.

2. In a lubricating device, a receptacle adapted to contain a body of lubricant to be vaporized, an air admission pipe from the atmosphere opening into the receptacle at the bottom thereof, a suction conduit leading into the upper portion of the conduit and having a vertical portion lying in the receptacle, a float, and a vertical pipe section having a passage through its wall supported by said float and telescoping freely with respect to said vertical portion of the suction conduit.

3. In a lubricating device, a receptacle adapted to contain a body of lubricant to be vaporized, an air admission pipe from the atmosphere opening into the lower portion of the receptacle, a suction pipe leading into the receptacle and having a movable extension lying inside the receptacle having a plurality of perforations through its side wall, and a float in the receptacle supported by direct contact with the lubricant on its lower side controlling the vertical position of said extension.

CLAYTON D. STOVER.