A. COSTA.

OILING SYSTEM.

APPLICATION FILED MAY 25, 1917.

1,350,643. Patented Aug. 24, 1920.

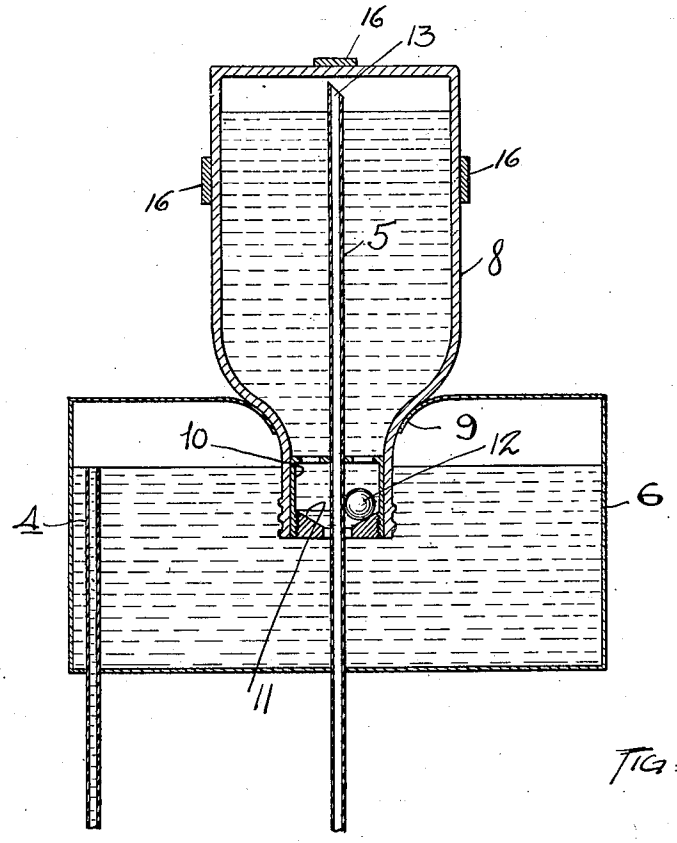
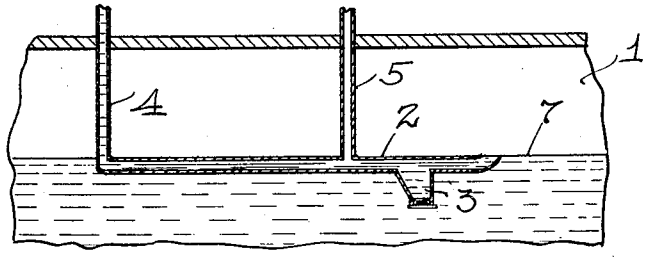



FIG. 1



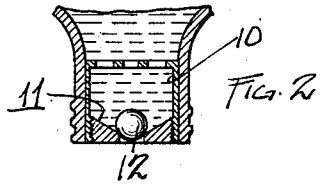




FIG. 2

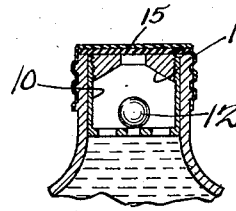



FIG. 3

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# UNITED STATES PATENT OFFICE.

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## OILING SYSTEM.

1,350,643. Specification of Letters Patent. Patented Aug. 24, 1920.

Application filed May 25, 1917. Serial No. 170,867.

*To all whom it may concern:*

Be it known that I, ANTHONY COSTA, a citizen of the United States, and a resident of East Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Oiling Systems, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present improvements, relating as indicated to oiling systems, are more particularly concerned with the provision of an economical and simple device for furnishing lubricant to any desired chamber or reservoir in amounts sufficient to maintain practically a constant supply therein at all times. My invention has, as a further object, the provision of a system in which the lubricant container may be readily removed from the other mechanism for refilling and as readily replaced when filled, the container being preferably provided with means which render it possible to handle it without spilling. While obviously applicable to many different mechanisms the present invention is believed to be particularly useful in connection with an internal combustion engine in a motor vehicle for maintaining a constant supply of lubricant in the crankcase. It is essential that a certain level be maintained in the crankcase and it is desirable that the lubricant does not exceed a certain level or smoking of the motor and the deposit of carbon will result. The present invention avoids both difficulties by the maintenance of a predetermined supply in the crankcase which cannot be exceeded or diminished except by a negligible amount while the reservoir is filled.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Figure 1 is an elevation showing my improved invention as applied to a crank-case of an internal combustion engine; Fig. 2 is a central vertical section through the removable oil container; and Fig. 3 is a similar view but showing a cap on the container.

In Fig. 1 I have shown a crank-case 1 of an internal combustion engine, into which there extends a lubricant supplying conduit 2. Adjacent to the end of the conduit 2 is a recess or pocket 3 adapted to collect dirt and dust which will otherwise enter the crank-case with the oil. To the left of the pocket 3 the conduit 2 is branched and the two branch conduits 4 and 5 are extended upwardly into a casing 6, which may be mounted at any convenient place adjacent to the engine, and if used on a vehicle, preferably on the dash or instrument board. The conduit 4 terminates at a suitable height in the casing 6, while the conduit 5 is extended upwardly a considerable distance beyond the top of this chamber. The point at which the conduit 2 is branched is below the level that is desired to be maintained in the crank-case, this level being indicated by the line 7.

Removably mounted in the casing 6 in an inverted position is a bottle-shaped casing 8 for lubricant, which is adapted to be positioned over the extension of the conduit 5 and to be supported on a suitable collar or other support 9, formed about the opening into the casing 6. The lower end or mouth of the bottle-shaped container 8 is adapted to be a slight distance below the top of the conduit 4.

The operation of the device is as follows:—The container 8 is first filled with lubricant and then positioned as shown in Fig. 1 over the extension of the tube 5 and mounted in the neck 9 in the casing 6. In this position the lubricant from the casing 8 will flow into the casing 6 until it reaches the level of the top of the conduit 4, when it will flow down through this conduit into the crank-case of the engine until the level of the oil in this crank-case has reached the top of the conduit 2. As soon as this level is reached no more air from the crank-case can pass up through the air conduit 5 into the top of the container 8. As more oil flows down from the latter into the casing 6 and then through the tube 4 in the crank-case a partial vacuum is formed above the oil in the container 8, and this vacuum will very soon prevent the further flow of liquid from this container into the casing 6. The flow of oil from the casing 6 into the tube 4 will

cease as soon as the oil in the casing descends to the level of the top of the tube 4. It may be that if the device is used on a vehicle which is subjected to vibration and severe bumps, a small amount of oil will be splashed from the casing 6 into the tube 4, but the amount will not be sufficient to lower the level in the casing 6 more than a fraction of an inch below the top of the tube 4.

When the oil in the crank-case has been used until its level is below the end of the tube 2 air will pass through this tube into the tube 5 and from there into the tube of the container 8. In this way the vacuum existing in the top of this container will be filled and the oil in the container 8 will then flow by gravity to the mouth of the container into the casing 6 and then down to the tube 4 in the crank-case until the end of the tube 2 is again covered by the oil in the crank-case. This filling action will be repeated automatically whenever the level of the oil in the crank-case drops below the end of the tube 2 and no attention is required to secure this operation.

The container 8 will preferably be formed with a mouth of sufficient size to receive a plug 10 having an opening therethrough and provided with a tapered outlet 11 which will be normally closed when the casing is inverted by means of a simple ball valve 12. By the use of this or an equivalent construction the casing 8 may be inverted for positioning in the casing 6 without the loss of any oil. When the mouth of the bottle 8 is inserted over the tube 5 the beveled end 13 of the latter will push the ball 12 to one side and will thus open the mouth of the bottle around the tube to permit the lubricant to flow down into the casing 6.

For convenience, threading 14 may be formed on the neck of the container 8 to receive a cap 15 which will serve to seal the container when not in use, and if desired similar threading may be formed on the neck 9 so that the container may be positively engaged therewith it is believed that a resilient bracket 16 will be sufficient for this purpose, the bracket being mounted on the dash or instrument board, if the mechanism is used on a vehicle.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. The combination with an oil reservoir, of a conduit leading thereto at the level to be maintained therein, a holder mounted adjacent to the upper open end of said conduit, and a normally sealed container adapted, when set in said holder and positioned over the open end of said conduit, to automatically be placed in connection therewith, said container being provided with means adapted to seal the same upon normal removal from said conduit.

2. The combination with an oil reservoir, of a conduit leading thereto at the level to be maintained therein, and extending vertically upward therefrom, said conduit having a beveled upper open end, a lubricant holder mounted adjacent such open end of said conduit, and a lubricant container having a single opening, a valve normally closing such opening, said container being adapted to be inserted in said holder with such open end of said conduit inserted in such opening, said beveled conduit being adapted to displace said valve and open said container into said conduit.

3. The combination with an oil reservoir, of a conduit leading thereto at the level to be maintained therein, and extending vertically upward therefrom, said conduit having a beveled upper end, a lubricant holder mounted adjacent such open end of said conduit, and a lubricant container having a single opening, a valve normally closing such opening, said container being adapted to be inserted in said holder at a fixed level with respect to said conduit and with such open end of said conduit inserted in such opening, said beveled conduit end being adapted to displace said valve and open said container into said conduit.

Signed by me, this 23rd day of May, 1917.

ANTHONY COSTA.