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GRAVITY FEED OILER

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2 Claims. (Cl. 184—103)

This invention relates to improvements in oilers of the gravity type feed adapted to automatically maintain a constant level of oil in oil reservoirs such as are used in connection with various types of bearings, gear cases and crank cases.

An object of the invention is to provide an automatic oiler comprising a suitable container having a single outlet which is situated in the bottom thereof and provided with a closure having an oil feed pipe secured thereto and adapted to be inserted into an upright cylindrical supporting member or casing suitably connected with the oil reservoir of the bearing to be oiled, and a vent pipe being mounted within the oil feed pipe and projecting upwardly into the container for the purpose of supplying air to the upper portion thereof to prevent the formation of a vacuum in the upper portion of the container, as the oil is fed from the container, and the relative location of the lower ends of the vent pipe and said feed pipe determining the level of the oil in the oil reservoir.

A further object is to provide a gravity feed oiler comprising an oil feed pipe having a comparatively small vent tube located therein, the lower end of which is adapted for communication with the atmosphere by means of suitable ducts, as the oil level lowers in the oil reservoir, whereby air may enter said tube for delivery into the upper interior portion of the oiler to break the vacuum tending to form therein.

A further object is to provide a simple and inexpensive oiler of the above character which readily lends itself for use with either light or heavy oil to automatically maintain the oil in the reservoir at a constant level, and the oiler being provided with a suitable sight gauge whereby an attendant may conveniently note the level of the oil in the reservoir.

Other objects of the invention will appear from the following description and accompanying drawing and will be pointed out in the annexed claims.

In the accompanying drawing, there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the drawing:

Figure 1 is a vertical sectional view of the oiler showing it connected with a common well-known type of oil reservoir;

Figure 2 is an exterior view of the lower portion of the oiler showing the oil sight gauge;

Figure 3 is a sectional plan view on the line 3—3 of Figure 1;

Figure 4 is a view showing the vent tube removed from the oiler; and

Figure 5 is a perspective view showing only the glass tube constituting the oil sight gauge of the oiler.

In the selected embodiment of the invention here shown, for purposes of disclosure, there is illustrated in Figure 1, a common type of bearing including a lower part 2 and an upper or bearing cap 3 between which a suitable bearing sleeve 4 is shown mounted. An oil reservoir 5 is provided in the bearing and an oil ring 6 is shown mounted in a slot 7 in the bearing sleeve and supported upon the shaft 8 in the usual manner with the lower portion submerged in the oil contained in the reservoir 5. When the shaft 8 is rotated, oil will be delivered from the reservoir onto the shaft by rotation of the oil ring 6.

The novel oiler featured in this invention is shown supported upon a suitable fitting 9, secured to the lower part 2 of the bearing and communicating with the oil reservoir 5. The opposite end of the fitting 9 terminates in a head 11, having an interiorly threaded portion 12 adapted to receive a cylindrical casing or member 13, preferably of metal.

The upper end of the casing 13 is shown threaded and adapted to receive a portion 18 of the closure 14. The closure has a threaded flange 15 adapted to receive the neck 16 of a suitable container 17, which preferably is made of glass so that the oil contained therein may readily be seen.

An oil feed pipe 19 is mounted in the central portion 18 of the closure 14, and depends into a glass tube 21 suitably secured within the casing 13. The glass tube may have its lower end seated upon an annular shoulder 22 and its upper end engaged with the face of the central portion 18 of the closure, so that when the closure is screwed tightly into the upper end of the casing 13, the glass tube will be clamped between the shoulder 22 and the portion 18, as will readily be understood by reference to Figure 1. A suitable gasket may be provided at the bottom of the glass tube 21 to prevent leakage.

Suitable vent holes 23 are provided in the upper portion of the casing 13 adapted to register with suitable notches or vents 24 provided at the upper end of the glass tube 21, as shown in Figures 1, 3, and 5.
An important feature of this invention resides in the means provided for admitting air into the upper portion of the container to prevent a vacuum from forming therein during operation of the oiler. Such means is shown in Figure 1 and consists of a small vent pipe adapted to be supported within the feed pipe by suitable spacing elements preferably secured to the periphery of the pipe and each preferably provided with a shoulder adapted to be seated against the upper inner surface of the closure as shown in Figure 1. The spacing elements axially locate the vent pipe within the feed pipe so as to provide an annular oil passage through which the oil from the container flows by gravity into the fitting. The elevation of the lower end of the vent pipe determines the level of the oil in the reservoir. The lower end of the vent pipe is preferably aligned with the lower end of the feed pipe, as shown in Figure 1.

The oiler featured in this invention readily lends itself for use in connection with all grades of lubricating oils whether light or heavy. Because of the vent pipe being situated within the feed pipe and having its lower end terminating substantially on a level with the bottom of the feed pipe, when the oil level begins to lower, a vacuum will tend to form in the upper portion of the container and will cause a slight suction to take place at the lower end of the vent pipe. This suction, however, is not sufficient to lift the oil upwardly into the pipe because of the inherent characteristic of the oil to adhere to the walls of the tube, thereby causing small quantities of air to be drawn around the lower edge of the feed pipe in the form of bubbles, through the body of oil at that point, and into the lower end of the vent pipe. This indrawn air will flow upwardly through the pipe and into the upper portion of the container and thus break the vacuum tending to form therein, with the result that additional oil will flow through the feed pipe to restore the oil in the reservoir to its normal level. It has been found that by the provision of the vent pipe within the oil feed pipe, the oiler will function with a comparatively heavy oil as well as with a light oil. This results because of the relatively short distance through which the air drawn into the upper portion of the container must travel before reaching the upper portion of the container.

The oiler is very simple in construction and may be manufactured at a minimum cost. To refill, the closure 14 with the container attached thereto, as shown in Figure 1, is unscrewed from the upper end of the casing 13, whereby the container and closure including the oil tube 19 and vent pipe 25 may be detached from the casing 13. The closure 14 is then removed from the container and the latter filled with a suitable lubricant, after which the closure is secured to the container and the parts returned to the position shown in Figure 1, whereupon the oiler immediately becomes operative.

We claim as our invention:

1. In an oiling device, an oil container, a closure cap therefor having a hole therethrough and a downwardly extended portion around the hole, an oil feed tube in said hole, a metal cylinder attached to the downwardly extended portion of the closure cap, a transparent cylinder inside of the metal cylinder, and abutting said downwardly extended portion of the closure cap, said metal cylinder having a sight opening opposite the bottom of the feed pipe and a vent pipe extending from near the bottom of the oil feed pipe to approximately the top of the container.

2. An oiling device comprising a container, a closure cap for the container having a central downwardly extending portion, a casing detachable from but connecting said portion with the fittings of a bearing to be lubricated, an oil feed pipe extending downwardly from said central portion of the closure cap and a vent pipe loosely fitting within the oil feed pipe and extending to approximately the top of the container and means for retaining the vent pipe in the feed pipe whereby said container, closure cap, feed pipe and vent pipe may be removed from the casing as a unit.

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