Oct. 23, 1928. 1,688,372

E. H. BARKER

OILER

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Fig. 1.

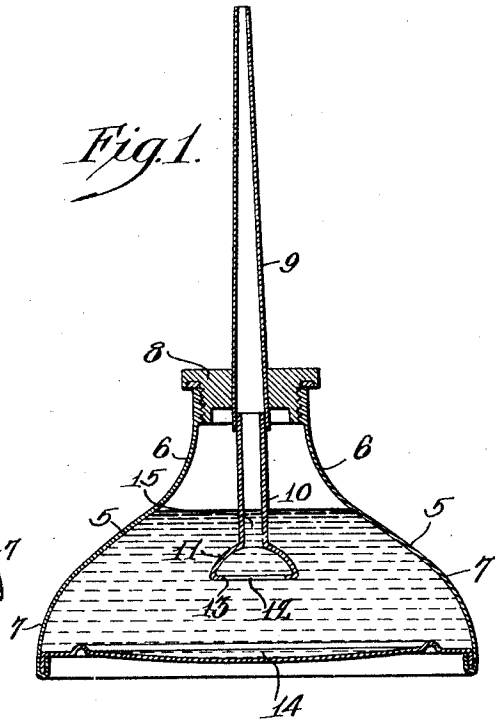


Fig. 4.

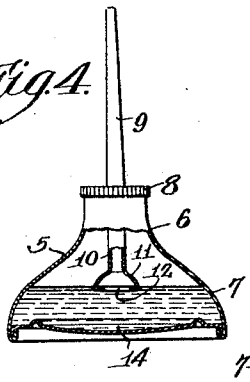


Fig. 5.

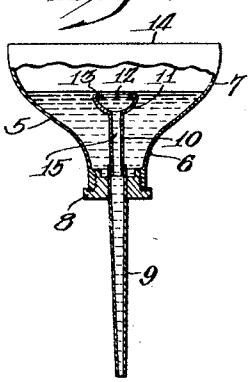


Fig. 2.

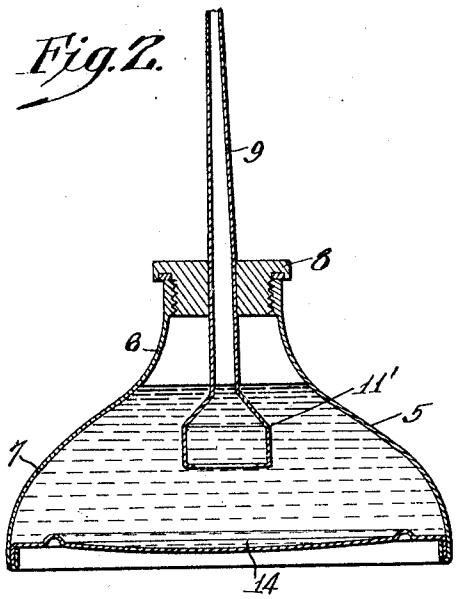
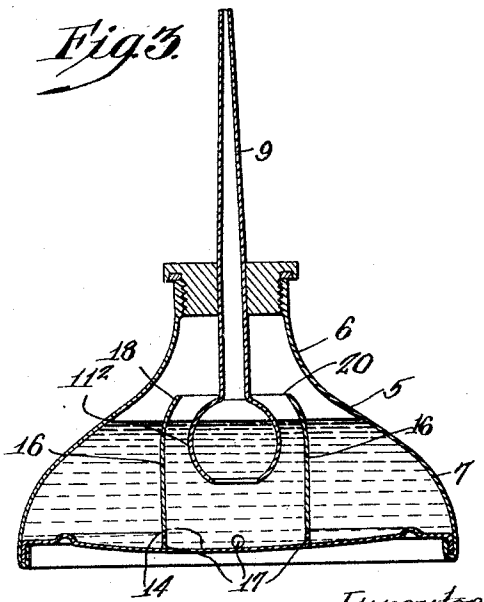


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWIN H. BARKER, OF MOYLAN, PENNSYLVANIA.

OILER.

Application filed December 1, 1925. Serial No 72,441.

My invention relates to oil cans intended for oiling machinery.

The main purpose of my invention is to improve the function of the can when distributing oil in an upward direction without seriously interferring with oil distribution when the spout is sloped downwardly.

A further purpose is to provide an extension of the spout within the can having a pocket or flare to enlarge the inlet and to catch and hold oil when the can is tilted.

A further purpose is to correlate the shape of the can and the position of the inlet to a spout extension within the can so as to secure the best average feeding conditions from the can in all positions.

A further purpose is to provide for a residuum of oil within the can for the purpose of maintaining an oil level in all positions constantly above my special outlet and to secure maximum air compression.

A further purpose is to provide a spring bottom oil can with a closure carrying a spout continuous above and below the closure and terminating in a bulb having a relatively constricted lower opening to trap oil within the bulb when the can is tilted and to bring pressure upon the oil trapped by means of the spring bottom.

Further purposes will appear in the specification and in the claims.

I have preferred to illustrate my invention by but three forms among many in which the invention might appear, selecting forms which have proved to be practical, efficient and reliable, and which at the same time well illustrate the principles of my invention.

Figure 1 is a central longitudinal section showing one embodiment of my invention.

Figures 2 and 3 are fragmentary sections corresponding generally to Figure 1, but showing other forms.

Figures 4 and 5 are longitudinal sections corresponding generally to Figure 1 but illustrative of oil level conditions.

In the drawing like numerals indicate like parts.

Though oil cans have been proposed in which the spouts have been extended down below the closure and into the can, they have had several serious defects. It has been necessary in tilting the cans to tilt them always in one direction, unsuiting the cans for use with straight nozzles, and they have no provision for catching extra oil in the extensions while the cans are being tilted in order that the cans will continue the oiling function reasonably when tilted excessively or turned upside down. The shape of the can has not cooperated to the best advantage with the rearwardly extended spout and the oil has not been fed into the spout to the best advantage.

In overcoming these and some other defects I have added a number of features, each of which is separately beneficial and all of which cooperate to secure highly beneficial results.

In all of my illustrations I have preferred to form the can body 5 with a relatively contracted upper contour 6 and a relatively swelled lower contour 7 in order that much the greater part of the oil many be contained in the lower part.

The screw closure 8 carries a spout 9 which is shown as straight above, but which, of course, may be curved if preferred. The spout is extended effectively down through the closure, integrally or by a connecting tube, to form an internal depending feed tube 10, terminating in a bell, flare, bulb or cup 11 open at the bottom at 12. The feed tube and nozzle are continuous in the sense that there is no leakage between them but need not be of the same cross section even at their meeting ends.

The bottom opening 12 is preferably smaller in cross section than is the adjoining interior of the cup so that some of the oil in the cup will be caught or trapped by the inwardly extending edge 13 of the cup as the can is excess vely tilted for use.

This trapping of oil supplies any predetermined quantity of oil, sufficient for normal use of the can in this position even when the quantity of oil in the can is relatively low and is too low to submerge the opening in the feed tube as the can is tilted. The wider the open ng the lower the depth of oil at which oil will still be pocketed during the t lting of the can with the oil depth below the intended minimum.

With the shape selected and in the position shown in Figure 1 the volume of the oil space within the lower third of the height of the space is approximately equal to the volume of the rema ning two-thirds of this space. As a result and as illustrated in Figures 4 and 5 with the preferred minimum of oil, a

trifle over half the total content of the can, the oil level will be nearly uniform at the limits right-side up and up-side down and will be high between these limits. This secures a covering of oil above the inlet in the two positions shown and so large a quantity of oil within the cup in any position of tilting as to insure flow of oil through the spout.

As a by-product of this advantage even a much lower level of oil will fill sufficient height in the side of the can as the can is tilted to be scooped up by the edge 13 giving a partial charge of oil sufficient for ordinary oiling purposes.

Considering first the form of Figure 1:—The cup is shown with its bottom opening about one third of the can height above the bottom of the can to cooperate with the height of oil secured by the shape of the can above noted. Where advantage is not to be taken of this, it may be placed at any desired height from the bottom 14 as predetermined by the depth of oil which the designer intends to require in the can for continued normal operation of the can. So long as the bottom of the cup is covered, oil may be ejected in the position shown for vertical oiling.

Even in this case it is desirable to maintain a considerable quantity of oil in the can if vertical oiling is to be had and even for other oiling, in order that the air space may be kept low and that the necessary pressure for ejection may be secured by a normal flexing of the bottom of the can.

With the bottom of the cup just covered or with any greater oil depth, tilting of the can will continue to submerge opening 15 from the cup into the nozzle until the can has tilted beyond the horizontal. With further tilting even if this "cover" of oil be lost sufficient oil depth will still lie over the lower edge of the cup to retain a considerable charge of oil. All of the oil so trapped will flow down into the spout and thus provide for oilings from a downwardly sloping spout in proportion to the size of the pool of oil caught by the cup during the turning movement. This quantity of oil and the slope of spout at which it will flow out may be controlled by variation in the size and shape of the cup as well as by reducing the opening in the bottom of the cup to any desired size.

In the form shown in Figure 2 the contour of the cup $11'$ has been changed to provide an easier slope from the cup to the spout.

In the form shown in Figure 3 the same general conditions are true as in the form shown in Figures 1 and 2, with the difference, however, that a perforated shield or baffle is provided about the bell, flare or cup 11^2 so that the oil is trapped about the flare or cup as the can is being tilted.

The extension of the nozzle here permissibly lies somewhat lower in the can and is shown at 11^2 as more nearly spherical and as having a relatively smaller opening than the other forms. These differences are intended to illustrate the capability of different forms of bell, flare or cup to secure the results, but no attempt has been made to show all the forms which would be useful for this purpose.

About the center is shown a baffle 16 of annular shape, and having relatively small openings 17 at the base of the baffle communicating with the outer part of the can.

When the can is rested on its base the oil will flow in through the baffle openings 17 and will fill up the entire bottom to a uniform height. The openings, however, are too small to allow the oil to flow out rapidly with the result that during brief tilting of the can the baffle is initially effective in confining the oil within it and increasing the height of the sloping pool of oil about the cup or flare just as if it were the side wall of the can. The baffle may be terminated at 20 so as to allow the oil to flow over its outer wall freely when the can is tilted to or but slightly beyond the horizontal, or, preferably, it may be inwardly turned at the end at 18 so as to maintain a relatively artificial height of oil throughout a much larger tilting range as desired.

In operation, where the baffle is used, an artificial height of oil is retained about the flare, bell, or cup so as to increase the quantity of oil available for use where the total quantity of oil in the can is relatively low and the can is being used in tilted position. On the other hand normal height of oil is resumed by reason of the percolation of oil through the aperture or apertures 17 soon after the can is rested upon its base. The use of the baffle secures part of the same benefit that is secured by the conformation of the can and, from this standpoint, might be considered as a substitute for it; but it is also beneficial even where the cooperation of the can conformation is secured, being then supplemental to it in the combination.

In view of my disclosures, modifications and changes of my structure will suggest themselves to others skilled in the art suiting individual whim or special need, or which are desirable to others because they secure all or part of the benefit of my structure without copying it. I, therefore, intend to cover here all such modifications as come within the reasonable spirit and scope of my claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In an oil can, a can body in combination with a closure for the body, a spout passing through the closure and an extension from the spout in fluid communication therewith, terminating at a height from the bot-

tom corresponding approximately with the horizontal plane which separates the interior capacity of the can into equal volumes.

2. In an oil can, a can body having a bottom adapted to be sprung toward the top of the can to discharge the contents and having approximately half of the capacity of the can in the first third of the height of the can, in combination with a closure for the can, a spout and an extension from the spout down into the can having an opening directly facing the bottom at a height approximately a third from the bottom.

3. In an oil can, a can body, a closure for the body, a spout and an extension from the spout down into the can, terminating in an enlargement internally flanged to form an opening of smaller cross section than the adjoining part of the enlargement and having the walls of the enlargement sloping downwardly and outwardly to provide for easy flow of oil therebetween.

4. In an oil can, a can body, a closure for it, a spout, an extension from the spout down into the can and a flared and terminally contracted end to the extension open at a height such that approximately one-half the volume of the can lies below the level of the opening.

5. In an oil can, a can body, a closure for the body and a continuous spout extending above the closure to the outlet and also below the closure, a bulb at the lower end of the spout extension well down in the body of the can communicating with this spout, open at the bottom and having an inwardly turned lower edge about the opening and a resilient bottom effective to bring pressure upon oil trapped in the bulb.

EDWIN H. BARKER.