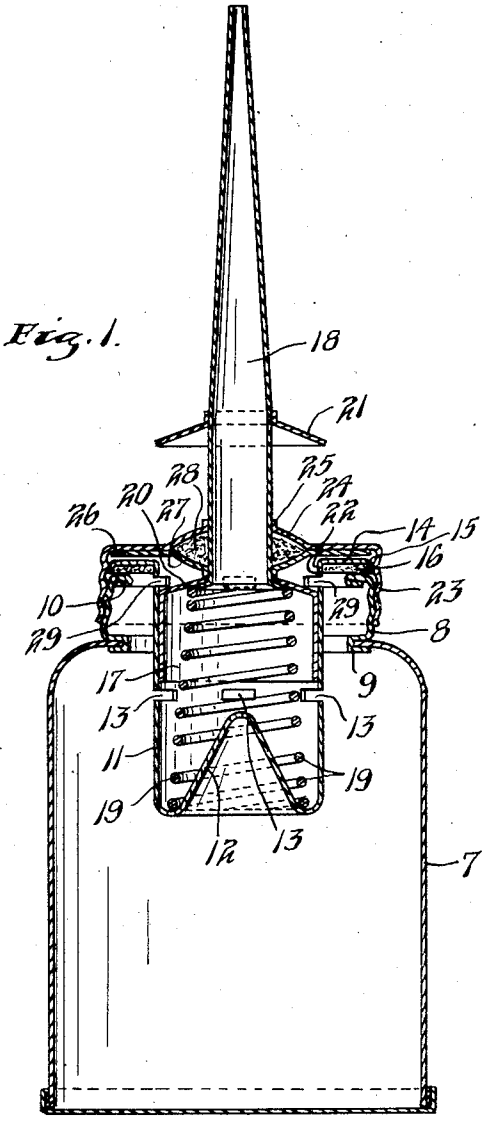
Aug. 15, 1939. C. A. ANDERSON 2,169,209

PRESSURE OIL CAN

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Fig. 1.



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Fig. 6.

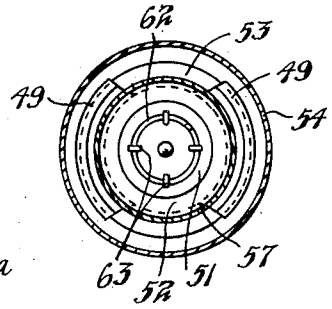


Fig. 2.

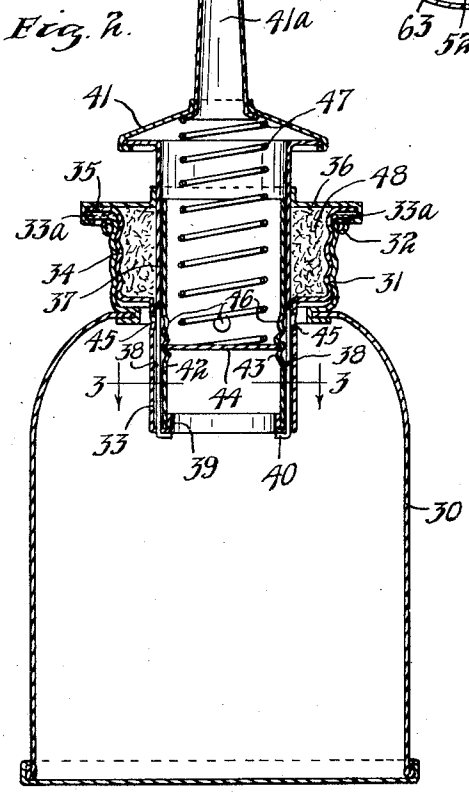


Fig. 4.

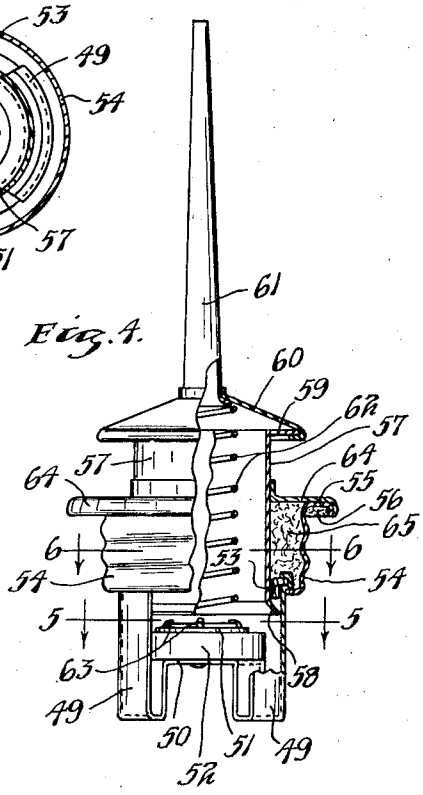


Fig. 5.

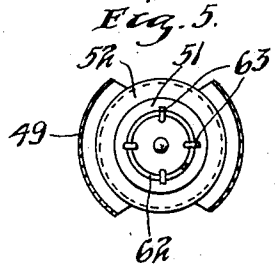
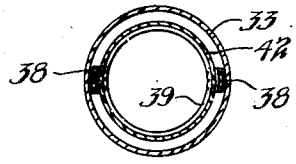


Fig. 3.



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Patented Aug. 15, 1939

2,169,209

UNITED STATES PATENT OFFICE

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PRESSURE OIL CAN

Chester A. Anderson, Litchfield, Minn., assignor of one-third to Alfred Anderson and one-third to Raymond N. Ornberg, both of Litchfield, Minn.

Application February 11, 1939, Serial No. 255,966

6 Claims. (Cl. 221—50)

This invention relates to dispensing containers and more particularly to pressure dispensers for lubricating oil.

One of the objects of my invention is to provide a pressure oil can construction which can be operated with the dispensing spout turned upwardly so that oil may be pumped from the can in that position, a result unobtainable with the well known type of oil can which has a flexible bottom which is pressed inwardly to force oil therefrom.

Another object of the invention is to provide a relatively simply formed pressure oil can whose different parts can be assembled with a minimum of labor.

Another object of the invention is to provide means for effectively sealing the can against leakage while still maintaining the parts easily removable from the can body for filling or cleaning.

Still another object of the invention is to provide a pressure oil can with reciprocatory or pumping action wherein the moving parts are effectively packed or sealed to prevent loss of lubricant between such moving parts and their guides.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like reference characters refer to the same or similar parts throughout the views, and, in which:

Fig. 1 is a vertical section through one form of my invention;

Fig. 2 is a vertical section through another embodiment of the invention;

Fig. 3 is a section taken on the line 3—3 of Fig. 2;

Fig. 4 is an elevation with parts broken away of still a third form of the invention with the pumping structure removed from the can body;

Fig. 5 is a section taken approximately on the line 5—5 of Fig. 4; and

Fig. 6 is a section taken approximately on the line 6—6 of Fig. 4.

In Fig. 1 there is shown a can body 7 having an opening at its upper end, the edge defining said opening having a sheet metal mouthpiece 8 crimped thereto at 9, said mouthpiece having external threads formed thereon as is clearly shown. The upper edge of the mouthpiece 8 is rolled as at 10 to provide a seat for purposes which will soon become apparent.

Extending into the body of the can 7 through the opening in its upper end is a substantially cylindrical element 11 whose bottom is closed and the central portion of said bottom is struck upwardly as at 12. In the side wall of the cylinder 11 are openings 13 which provide for communication between the interior of the can body and the interior of said cylinder. The upper portion of the cylinder 11 is bent to provide a radial flange 14, and the outer edge of said flange is rolled as at 15 to provide a retainer for a gasket or packing ring 16. It will be noted from the drawings that the packing ring is positioned between the rolled upper edge of the mouth 8 and the underside of the cylinder and flange 16.

Within the cylinder 11 is positioned an inverted cup-shaped plunger element 17 which has rigidly secured thereto a spout 18, and the interior of said plunger element 17 opens into said spout as is clearly shown. The plunger 17 is slidable in the cylinder 11 and in the upper position shown in the drawings the bottom edge of the plunger is positioned above the openings 13 in the wall of the cylinder. A coil spring 19 is positioned between the underside of the upper end of plunger 17 and the bottom of the cylinder 11 under compression to normally maintain said plunger in its upper position. It will be noted that the upwardly struck bottom 12 of the cylinder 11 provides a groove which acts as a seat for the lower end of spring 19, and said spring tapers to some extent upwardly and is seated around a flange 20 provided by outwardly flaring the lower end of the spout 18 at the point where it is connected to the upper end of the plunger 17.

A flange 21 which is secured on the spout 18 provides a finger grip which is engaged and pressed upon to lower the plunger and spout with respect to the cylinder 11 when pumping lubricant. That portion of the spout 18 between the flange 21 and the lower end of the spout is of uniform diameter, and said uniform spout portion extends through a central aperture in a cap 22 which is provided with a downwardly extending threaded element 23 which is adapted to engage the threads on the mouthpiece 8. It will be noted that the cap 22 in its central portion around the opening therein is bent upwardly as at 24 and provided with a turned edge 25. The edge portion 25 slidably engages the spout 18. A central plate 26 underlies the cap 22 and may or may not be secured to said cap. The plate 26 is apertured and that portion surrounding the aperture is bent as at 27 and provided with an edge bent in the same manner as

the portions 24 and 25 of the cap proper. The space between these more or less central bent portions of the cap 22 and the plate 26 are adapted to receive and maintain a quantity of packing material 28. This packing is of any type of material suitable for retaining oil against leakage between the spout and the cap and plate.

The cylinder 11 is provided adjacent its upper end with one or more openings 29 which connect the interior of the can body with the space within the cylinder between the cap plate 26 and the upper side of the plunger 17. These openings admit lubricant to that space to assist in forming a seal between said plunger and the inner wall of the cylinder 11.

In operation the can body 7 is filled with lubricant and the cylinder with its plunger element and attached spout are secured in position in the mouth of the can by screwing the cap 22 into place. If oil is dispensed with the can spout horizontal or below the horizontal it is necessary only to reciprocate the spout and plunger 17 by exerting pressure on the flange 21 and then releasing it to permit action of the compression spring 19. When the plunger and spout are pressed inwardly the side wall of the plunger will pass the openings 13 in said cylinder and prevent flow of oil back into the oil of the can. If the plunger is pressed further inwardly the oil which has accumulated between the bottom of the cylinder 11 and the inner walls of the plunger 17 will be forced out through the nozzle 18. However, if the can is used with the spout pointing upwardly, it is, of course, necessary to first load the cylinder 11 with lubricant. This is done by tipping the can so that oil will run into the cylinder between the bottom of the cylinder and the plunger 17. The plunger is then pressed inward slightly to close off the openings 13 and then the can can be returned to an upright position. Further pressure of the plunger will cause oil to be forced outwardly through the spout 18. The seal between the plunger and the cylinder 11 is naturally a good one due to relatively close fitting of the parts and the fact that oil being relatively viscous will close up the slight space between them so that there is no appreciable amount of leakage past the plunger. If there should be any slight leakage this oil can, of course, drain back into the can through the opening 29. The packing rings 16 and the packing 28 prevent any oil from escaping from the can except through the spout 18 in normal operation of the device. The device is easily assembled since the plunger and spout element are slipped into the cylinder and the cylinder is then inserted in the mouth of the can with the flange 14 resting on the upper edge of the can mouth 8. The cap element 22 with its cooperating plate 26 is then slipped over the spout and screwed into position, and the finger engaging flange 21 on the spout is secured in place by welding, soldering, or merely by means of a press fit. This assembly operation is extremely simple and takes up very little time and the several parts are so arranged that no particular skill is required in assembling since said parts need not be brought together with any need for adjustment or accurate positioning.

In Fig. 2 there is shown a can body 30 which has a mouth 31 similar to the mouth 8 in Fig. 1 except that the upper edge of said mouth is rolled outwardly as at 32, whereas the edge in the first described embodiment is rolled inwardly. A substantially cylindrical element 33 extends downwardly into the interior of the can through the mouth and is open at its lower end. The cylinder is widened at the point where it extends outwardly through the mouth and the widened portion thereof is provided with a threaded area 34 which cooperates with the threads on the can mouthpiece 31. The extreme upper edge of the widened cylinder is flanged outwardly to provide a lip 35. A cap 36 fits over the top of the enlarged end of the cylinder 33 and is crimped around the lip 35 to retain a packing ring 33*a*. The packing ring 33*a* rests against the upper rolled edge 32 of the can mouthpiece. A sleeve-like element 37 extends into an aperture in the center of the cap 36 and is adapted to slidably fit the interior of the cylinder 33. Extending downwardly from the lower end of the sleeve-like element 37 are legs 38 which pass through openings in the rolled lower edge 39 of the cylinder 33. The lower ends of the legs 38 are turned inwardly as at 40 to limit upward movement of the sleeve 37 with respect to the cylinder 33. The upper end of sleeve 37 is flared outwardly as shown and this flare receives the lower portion 41 of a spout 41*a*.

An inner sleeve 42 is provided with a corrugation 43 which rigidly holds a disc 44. The disc 44 and inner sleeve 42 provide an oil receiving pump chamber which is similar to the chamber formed in the lower part of the cylindrical member 11 in Fig. 1. The outer cylinder 33 is provided with openings 45 which register with openings 46 in the inner sleeve 42 so that oil may flow from the can into the chamber formed by said inner sleeve and the disc 44. A compression spring 47 is positioned between the disc 44 and the flared base 41 of the spout 41*a*. This spring normally maintains the intermediate sleeve 37 in the upward position shown in the drawings. A suitable packing material 48 is positioned in the enlarged portion of the outer cylindrical member 33 and retained therein by the cap 36.

It is obvious that the function of the structure shown in Fig. 2 is the same as that above described with respect to Fig. 1.

In Fig. 4 there is shown a pressure pump assembly which is adapted to fit into a can such as shown in Figs. 1 and 2, said can having a mouth similar to the mouth 31 with the rolled edge 32 disclosed in Fig. 2. Instead of the cylinder such as is provided in the first two embodiments I provide a strip of metal 49 which is curved transversely as best illustrated in Fig. 4, and said strip has a pair of upstanding legs with its intermediate portion bent upwardly to provide a central support 50 for a resilient or flexible plunger 52 secured to support 50 as by a rivet running through a disc 51. The element 49 constitutes a sleeve-like guide which is the equivalent of elements 11 and 33 in the two previously described constructions. The legs of the element 49 extend upwardly and are crimped around the outer edge of a ring 53 which as shown is right-angled in cross section. The crimped or rolled upper edges of the legs of the element 49 rest upon an inwardly turned flange of a threaded collar 54, the latter corresponding to the threaded enlarged cylindrical portion 34 in Fig. 2. The threaded collar 54 has a radial upper flanged portion 55 which is slightly rolled at its extreme edge to secure a packing ring 56 which is adapted to rest against the upper rolled edge of the can mouthpiece such as the mouthpiece 31 with its edge 32 in Fig. 2.

A sleeve 57 extends in between the upstanding

legs of the element 49 with a sliding fit and the lower edge of the sleeve 57 is flared outwardly at 58, said flare coming into engagement with the ring 53 to limit the upward movement of the sleeve 57 with respect to said element 49 and the ring 53. The upper end of the sleeve 57 has an annular flange 59 to which is secured the base 60 of a spout 61. A compression spring 62 is positioned between the disc 51 and the underside of the spout base 60. A plurality of small ears 63 which are connected to the disc 51 are adapted to anchor the spring 62 at its lower end. The plunger 52 on the disc 51 is of such size that it will just fit the inner diameter of the movable sleeve 57 when said sleeve is pressed downwardly. A cap 64 is crimped over the rolled edge 55 of the collar 54 to retain a packing material 64, and said cap 64 is provided with a central flanged aperture to slidably receive the sleeve 57.

In this least embodiment of my invention it will be seen that when the can is tipped, oil will flow into the sleeve-like plunger 57 and when it is pressed in slightly the bottom of said plunger will be closed by the packing ring 52 and disc 51 and when the can is again tipped to its normal vertical position further pressure on the plunger and spout assembly will cause oil to be ejected from said spout. In assembling this structure the upstanding legs of the element 49 are first crimped around the ring 53 and the assembly inserted into the threaded element 54 from the upper side therof until the roll or crimp on the upper end of each of the legs of the element 49 rests against the bottom flange of said threaded element 54. This assembly, of course, is made after the plunger 57 has been positioned between the legs of the bent member 49.

From the foregoing description it will be seen that I have provided an improved pressure dispensing can which is efficient in operation and which can be very quickly and easily assembled. It is a device which permits ejection of oil therefrom in an upward direction and in fact in any direction under pressure. The various parts are so arranged and formed that the assembly work requires little or no crimping together or soldering of parts during said assembly operation. It is effectively sealed to prevent the escape of oil and is so constructed that it can be easily manipulated with one hand. The plunger and spout assembly is provided with amply sufficient guide elements to prevent it from jamming in operation so that the movable parts will function smoothly. Furthermore, it is a device which is as easily refilled with lubricant as any conventional type of oil can.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What is claimed is:

1. A pressure oil can comprising a can body having an opening therein, a sleeve supported in said opening and extending into said body and having an opening communicating with the interior thereof, a movable assembly comprising a spout and cylindrical plunger, said plunger having an open bottom and interior and communicating with said spout, said plunger being in slidable contact with the inner wall of said sleeve throughout its limit of slidable movement, a cap element secured across the opening in said body and having an aperture to slidably receive and guide said movable assembly, and a mass of packing material around said movable assembly and retained by said cap.

2. A pressure oil can comprising a can body having a mouth, a substantially cylindrical member extending into said body through said mouth and including a lower stationary plunger portion, said cylindrical member communicating with the interior of said body above said stationary plunger portion, an upper annular flange on said cylindrical member, a sealing ring beneath said flange and resting upon the edge of said can mouth, an assembly comprising a spout and a hollow plunger in communication therewith, said assembly being movable in said cylindrical member to cut off communication between said cylindrical member and the interior of said body above said stationary plunger portion to exert pressure on the liquid in said cylindrical member, an apertured cap detachably connected to said can mouth, said movable assembly being slidably positioned in said aperture, and packing material around a portion of said assembly and retained in position by said cap.

3. A pressure oil can comprising a can body having a mouth, a cylinder extending into said body through said mouth and having a closed lower end, said cylinder having an opening communicating with the interior of said body, an annular flange on said cylinder overlying the edge of said mouth, a gasket held by said flange between the flange and the edge of said mouth, a plunger slidable in said cylinder from a point above the opening in said cylinder to points below said opening, a spout secured to said plunger and communicating with the interior thereof, a compression spring between the bottom of said cylinder and underside of said plunger normally holding said plunger in the upper portion of said cylinder above said cylinder opening, a cap detachably secured to said mouth and having an aperture slidably receiving a portion of said spout, and packing material retained around said spout by said cap.

4. The structure in claim 3 and said cap including an apertured main body portion and a disc secured thereto, said disc having an aperture in alignment with the aperture in said cap body, those portions of said cap body and said disc surrounding said aperture being spaced from each other, and said packing material being retained in the space thus formed.

5. A pressure oil can comprising a can body having a mouth portion provided with internal threads, a sleeve-like element the lower portion of which is positioned within said can body and the upper portion of which is enlarged and externally threaded to fit the threads in said can mouth, the lower end of said sleeve being rolled to form an annular open topped channel, an internal sleeve resting at its lower end within said channel and spaced inwardly from the walls of the lower portion of said outer sleeve-like member, said inner and outer sleeves having registered openings therein to permit the flow of liquid from the interior of said can body into said inner sleeve member, said sleeve being closed below the openings therein, a substantially cylindrical plunger element fitting between said inner and outer sleeves, a leg element depending from said cylindrical plunger and extending through the bottom of the channel on the lower end of said outer sleeve member, said leg having a projection on its lower end to limit upward sliding movement of said leg relative to said channel, a spout secured to the upper portion of said cylin-

drical plunger, a compression spring positioned between the closure in said inner sleeve and a portion of said plunger and spout assembly to normally force the latter upwardly, the lower edge of said cylindrical plunger being normally positioned above the openings in said inner and outer sleeve members, and said plunger being movable inwardly with respect to said inner and outer sleeves to shut off communication between said openings and to permit pressure to be exerted upon liquid within said inner sleeve.

6. A pressure oil can comprising a can body having a mouth portion, a collar detachably secured to said mouth portion and having an inwardly extending flange on its lower end, a strip of arcuate cross section and having vertically disposed leg portions at its ends, the intermediate portion of said strip supporting a stationary plunger element, the ends of said vertical legs having opposed channels, a ring element clamped between said vertical legs and positioned in said opposed channels, said strip with its vertical legs being positioned within the flange on said collar and being retained in ring clamping position thereby, a movable cylindrical plunger element a portion of which is slidable between the legs of said strip, said cylindrical plunger having a laterally extending stop element at its lower end, said ring lying in the path of upward movement of the stop element on said plunger, a spout secured to the upper end of said plunger, a compression spring connected between said stationary plunger element and a portion of said movable plunger element, and packing material around said movable plunger and within said collar.

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