

July 26, 1938.

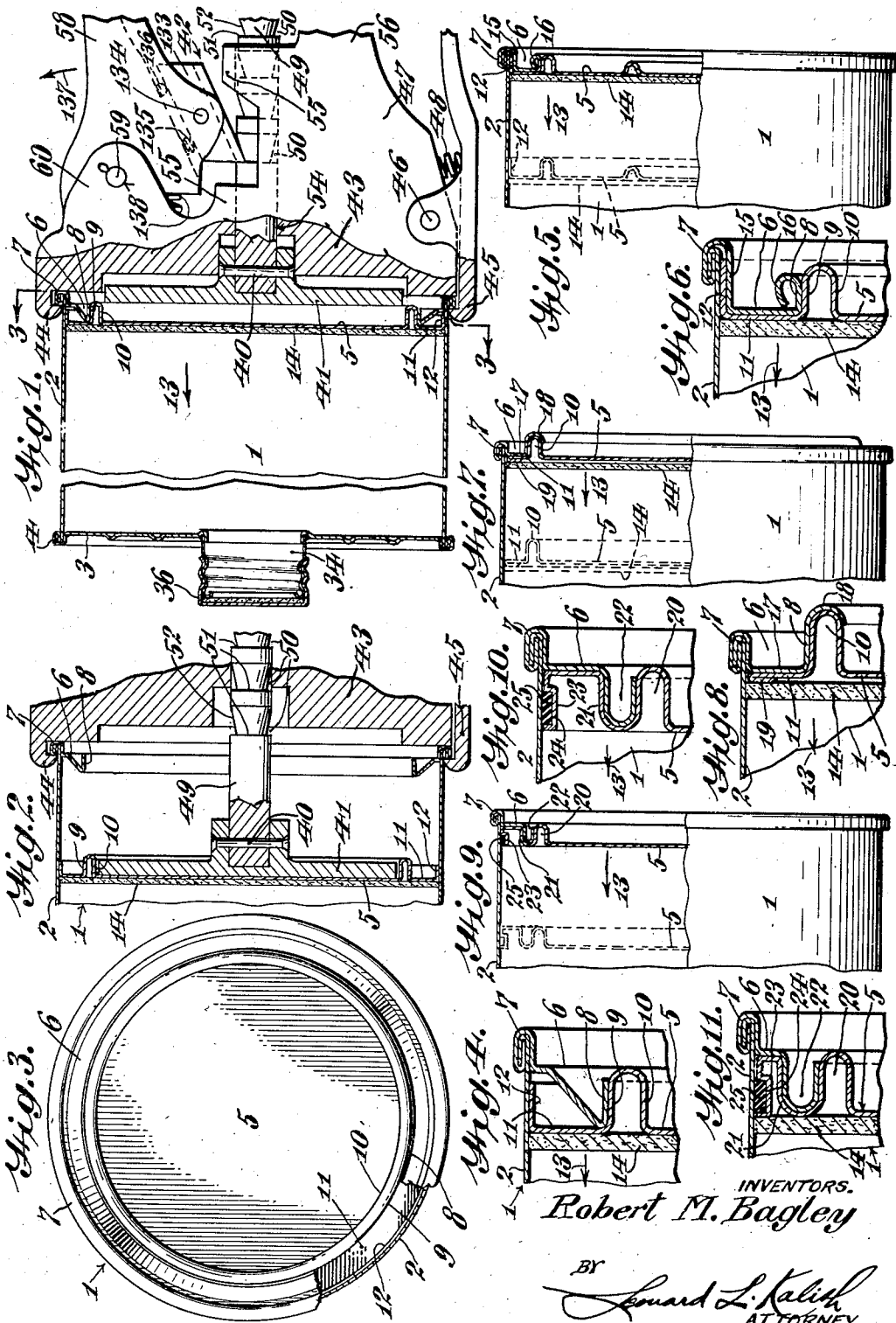
R. M. BAGLEY

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GREASE DISPENSING MEANS

Filed Aug. 28, 1934

2 Sheets-Sheet 1



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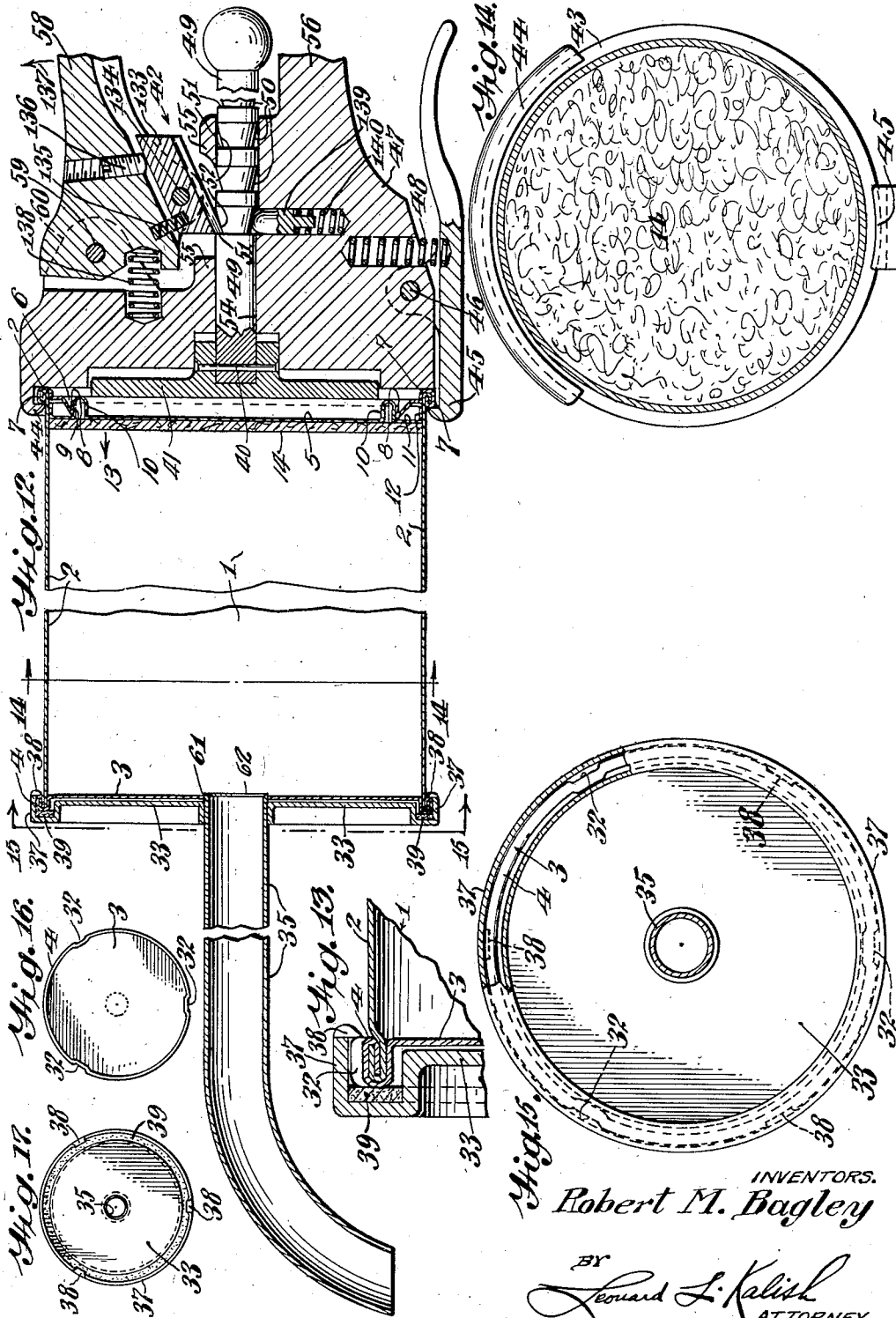
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2 Sheets-Sheet 2



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GREASE DISPENSING MEANS

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7 Claims. (Cl. 221—47.3)

My invention relates to a grease dispensing apparatus, and it relates more particularly to means whereby the grease lubricant or other similar material may be dispensed directly from the original container under suitable pressure, and whereby the container will at the same time be destroyed as a result of such dispensing operation, so that it may not be refilled and used over again by unauthorized persons, thereby preventing fraudulent substitution of materials.

One of the objects of my present invention is to provide a sheet metal container or can in which grease lubricant or other similar material may be packaged for sale and distribution through the usual channels of commerce and from which the lubricant grease or other material may then be expelled under suitable pressure directly into the transmission or differential housing of the automobiles, and such other machine parts where the lubricant is required, without first transferring the contents of the tin can into some other vessel forming a part of some dispensing apparatus.

A further object of my invention is to provide simple and inexpensive means whereby the contents of the tin can may be expelled and the tin can destroyed thereby or rendered unfit for subsequent use as a container.

With the above and other objects in view, my invention consists of a container including a generally cylindrical or prismatic body or a body having a generally cylindrical prismatic or other suitable parallel side walls, a top and bottom secured to said body, an opening in said top and means for forcing said bottom inwardly and through the body in the fashion of a piston, thereby to help to expel the contents of the can through the opening at the opposite end or top of the can.

My invention further consists of other novel features and details of construction, all of which will appear more fully from the following detailed description and accompanying drawings.

For the purpose of illustrating my invention, I have shown in the accompanying drawings forms thereof which are at present preferred by me, since the same have been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized, and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Referring to the drawings, in which like reference characters indicate like parts,

Figure 1 represents a sectional view of a container embodying my invention, and expelling means associated therewith;

Figure 2 represents a fragmentary sectional view, similar to that shown in Figure 1, with the bottom of the can displaced some distance in the direction of the top of the can, showing the action of the bottom of the can as a piston;

Figure 3 represents a section on line 3—3 of Figure 1;

Figure 4 represents a fragmentary sectional view of the bottom construction shown in Figure 1, illustrating the same however on a much enlarged scale;

Figure 5 is a partial sectional view of the bottom of a can, of a modified form of construction embodying my invention;

Figure 6 represents a similar fragmentary sectional view on a much enlarged scale;

Figure 7 is a partial sectional view of the bottom of a can, of another modified form of construction embodying my invention;

Figure 8 represents a fragmentary sectional view, on a much enlarged scale, of the modified form of bottom construction shown in Figure 7;

Figure 9 represents a partial sectional view of the bottom of the can or container, of another modified form of construction embodying my invention;

Figure 10 represents a fragmentary sectional view of the modification shown in Figure 9, illustrating the same however on a much enlarged scale;

Figure 11 represents a similarly enlarged fragmentary sectional view of the modification of my invention shown in Figures 9 and 10, illustrating a further modified form of construction of the same;

Figure 12 represents a sectional view of a container and ejector means associated therewith, of another modified embodiment of my invention;

Figure 13 represents a similar fragmentary sectional view on an enlarged scale of the top of the tin can or container, and the nozzle attaching means associated therewith;

Figure 14 represents a front elevational view of the ejector means taken on line 14—14 of Figure 12, looking in the direction of the arrows;

Figure 15 represents a front elevational view of the nozzle attaching means, taken generally on line 15—15 of Figure 12;

Figure 16 represents a top plan view of the top of the can, on a much reduced scale;

Figure 17 represents a plan view of the can—

engaging side of the nozzle attaching means, on a similarly reduced scale.

According to one embodiment of my present invention, I provide an original container of sheet metal or the like, designated generally by the numeral 1, of any suitable cross-section which is generally constant throughout its length, but preferably of a circular cross-section, as indicated in Figure 3. The container 1 includes the generally cylindrical side wall 2, the top end member 3, seamed thereto by any suitable interlapped seam 4, or other suitable seam of any suitable or conventional construction, and having a bottom end member 5 frictionally held in place within the annular flange portion 6, the latter being in turn fixedly secured to the cylindrical body 2 by the interlapped seam 7 of any suitable or conventional construction which projects laterally from the body at one end thereof.

The bottom flange portion 6 of the container is provided with a more or less cylindrical portion 8 of suitable axial extent, sufficient to provide firm and fluid-proof frictional contact and seal with the corresponding, more or less cylindrical portion 9 of the bottom 5. It will be observed that the cylindrical contact portion 9 of the bottom 5 is formed in continuation of an annular portion 10 of the bottom, of generally U-shaped cross-section, which serves to give the bottom member 5 substantial reinforcement and also serves to provide a more satisfactory frictional contact seal between the surfaces 8 and 9. The bottom 5 then continues out along the plane peripheral portion 11 and terminates in the cylindrical peripheral portion or cylindrical guide flange 12, which is adapted more or less firmly or more or less lightly to contact the inner surface of the cylindrical wall 2 of the container, thereby to serve as a piston when the bottom 5 is advanced in the direction of the arrow 13 in the course of the expulsion of the contents of the container.

Within the container and against the bottom 5, a packing disc 14 may be provided, of any suitable material, such as cardboard, paste-board, rubber or rubber composition, which is adapted to increase the seal between the bottom 5 and the cylindrical wall 2 when the former is advanced in the direction of the arrow 13, for the expulsion of the contents of the container.

The ejector, designated generally by the numeral 42, is of the general type disclosed in co-pending application Serial No. 705,562, filed January 6, 1934 (of which the present application is a continuation in part), and includes a can gripper portion and a ram rod and actuating means therefor, in operative relation to the can gripper portion. Thus the ejector 42 includes a main body portion 43, of more or less circular cross-section, having a stationary bead-engaging member 44, of more or less arcuate shape and integrally formed therewith, or otherwise fixedly related thereto, and a movable bead-engaging member 45 at a point more or less diametrically opposite to the bead-engaging member 44. The movable bead-engaging member 45 may be pivoted at 46, to any suitable webbing or other structural member or portion 47 of the body 43 (being either integral therewith or fixedly secured thereto), and is yieldably held in an engaging position by any suitable spring 48. The members 44 and 45 are adapted to engage the slight annular bead-like seam 7 surrounding the bottom of the can, thereby to hold the can fast and in predetermined relation to the ram rod 49, and the follower plate 75 or press platen 41, which is suitably secured to

the ram rod 49, as for instance by screw-threaded connection or by means of a pin or rivet 40, or by other suitable fastening means. In the embodiments of my invention herein shown, the ram rod 49 is provided with a series of spaced annular grooves 50 generally throughout its length, with the exception of the innermost terminal portion thereof, to which the plate 41 is secured.

The annular grooves 50 include the more or less plane annular surfaces 51, generally at a right angle to the axis of the rod 49 and the inclined and more or less conical surfaces 52, thereby forming a rack which may be advanced positively in one direction (in the direction of the arrow 13) by means of the spring-tensioned pawl 133, and the rod 49 may be rotated without affecting the function and operation of the pawl 133. The rod 49 is slidably mounted within a suitable bore 54, of the guide portion 55 of the body 43, which is preferably integrally or otherwise fixedly related to the body portion 43. A stationary handle 56 extends generally parallel to the ram rod 49 shown broken away in the drawings), and is either formed integrally with the body portion 43 or is otherwise firmly or fixedly secured thereto or to the web portion 47. The handle 56, extending generally parallel to the ram rod 49 in closely spaced relation thereto, may be slightly dished in cross-section, so that the ram rod 49 may lie generally within the dished groove of the handle, thereby to afford the ram rod more protection against injury in handling. The movable handle 58 is preferably pivoted to the member 43, as for instance by means of the pivot 59, extending through said handle 58 and through the pivotal lug or hinge member or portion 60, which is also integrally or otherwise fixedly or stationarily related to the body portion or member 43. In suitable spaced relation to the pivot point 59, the pawl 133 is pivotally secured to the handle 58 by means of the pivot pin 134. The pawl 133 is yieldably urged towards the ram rod by any suitable spring, such as the helical compression spring 135 (see Figure 12) while the set screw 136 adjusts the limiting position of the pawl 133 in relation to the handle 58. Thus, when the handle 58 is in the completely retracted position (deflected in the direction of the arrow 137) the pawl 133 will be clear of the rod 49, so that the rod may be pulled back or retracted. The spring 138 serves to open or to retract the handle 58. The spring-pressed plunger 139, urged by the spring 140, serves yieldably to retain the rod 49 in any position.

In the normal use of the device of my present invention, the screw cap 36 is removed from the screw-threaded neck 34 of the container, and the can placed in operative position between the bead-engaging members 44 and 45, as indicated in Figure 1. Thereupon the two handles 56 and 58 are grasped in one hand and by a one-handed operation, to wit, the opening and closing of the hand, the handle 58 is oscillated to and fro about the pivot 59, thereby causing the pawl 133 to ride idly over each notch of the rod 49, while the handle 58 is moved in the direction of the arrow 137, and causing the pawl 133 firmly to engage in the next notch of the rod 49 when the handle is moved in the opposite direction, and to advance the rod 49 and the plate 41 in the direction of the arrow 13 to the extent of one or more notches. As a result of this advancing of the rod 49 and plate 41, the bottom 5 is forced into the can, against the frictional resistance offered

by the frictional contacting surfaces 8 and 9, and the can bottom 5 then serves as a piston to eject the contents of the can through the screw-threaded neck or opening 34 of the can. If desired, a spout or other suitable conduit may be screw-threadedly or otherwise secured to the neck 34 of the can, thereby to direct the discharge into any suitable opening, as for instance, into the opening of a gear case or the like.

In Figures 5 and 6 I have illustrated a modified embodiment of my present invention, wherein the bottom flange portion 6 of the can is provided with the cylindrical portion 15 extending generally parallel to the cylindrical portion 2 of the body of the can, and in spaced relation thereto at a distance more or less the same as the thickness of the cylindrical contact portion 12 of the bottom 5, thereby to form a firmer seal between the bottom and the body of the can, while the can is in storage, so as better to prevent the leakage of the contents. Thus it will be seen that by the disposition of the annular flange 12 of the bottom 5 between the cylindrical portion 2 of the body of the can and the cylindrical portion 15 of the flange member 6, a greater sealing surface is provided between the movable bottom of the can and the can itself. In order to increase the rigidity of the flange member 6, the more or less cylindrical contact portion 8 may be bent outwardly and continued in an annular bead 16, as indicated particularly in Figures 5 and 6.

In Figures 7 and 8 I have illustrated another modified embodiment of my present invention, or another improvement of my present invention, wherein the bottom-engaging or bottom-receiving flange 6 is provided with a generally plane, annular portion 17 and wherein the generally, or more or less cylindrical contact portion 8 is continued in an annular portion 18 of a more or less curved cross-section, conforming generally to the curvature of the cross-section of the annular portion 10 of the bottom 5, thereby to provide a contact between the bottom-receiving flange 6 and the bottom, through a successive series of annular surfaces at different angles to each other, as for instance, the more or less plane surface 17, more or less at a right angle to the axis, the generally cylindrical, annular surface 8, more or less parallel to the axis, and the curved surface 18, extending generally transversely of the axis. In this embodiment of my invention the more or less plane portion 11 of the bottom 5 is folded back upon itself as at 19, thereby to give greater rigidity to the flat annular portion 11 of the bottom 5 and so as more firmly to maintain contact with the corresponding portion 17 of the bottom-receiving flange 6.

In Figures 9 and 10 I have illustrated a further embodiment of, or improvement in, my present invention, wherein the movable bottom 5 is provided with two oppositely extending U-cross-sectioned annular portions 20 and 21, while the bottom-receiving or bottom-engaging flange, designated generally by the numeral 6, is provided with the inwardly extending U-cross-sectioned annular portion 22, which extends into the outer U-shaped channel 21 of the bottom 5, thereby to form a firmer and better sealed junction between the bottom and the body of the can when the can is in storage or transit;—thus better to prevent leakage of the contents while the device is not in use. The bottom, designated generally by the numeral 5, is provided with a forwardly extending, generally cylindrical por-

tion 23, adapted more or less to contact the inner cylindrical wall of the container and provided with an annular groove or channel 24, within which an annular packing gasket or ring 25, of a suitably resilient or expansive packing material is disposed. The packing ring 25, adapted to bear against the cylindrical wall of the container, may be formed of a grease resistant or oil resistant rubber or rubber composition, or of other suitable packing material.

In Figure 11 I have illustrated a further modification of the embodiment shown in Figures 9 and 10, wherein the additional packing disc 14 is provided, and wherein the annular U-shaped channel 21 of the bottom 5, within which the annular U-shaped portion 22 of the member 6 is adapted to fit, is spaced relatively closely to the annular ring-receiving groove or channel 24.

In Figures 12, 13, 15, 16 and 17 I have illustrated another feature in connection with the top of the container, which I may apply to a container having the form of bottom shown in Figures 1 to 11 inclusive. In this phase of my present invention, the top 3 of the can is without any neck, such as the neck 34 or the like, and instead is provided merely with a central hole 61, which may be produced by providing a circular scoring in the top 3 of the can which may be punched out by any suitable implement or opener 62, and may be covered (while the container is in storage or in transit or otherwise unused) by a tin disc soldered to the outside of the top and having a suitable pull tab by means of which it may be torn off from the top. The top bead 4 in this phase of my invention is provided with two, three, or more indentations 32, which are pressed in by any suitable forming die. A generally disc-like closure member or attaching member 33 is provided, having a central opening into which or to which a spout 35 is secured, and having an outer flange 37 adapted to surround the bead 4 and having 2, 3 or more inwardly projecting, claw-like hooks 38 which are adapted to pass through the notches 32 in the upper bead 4 of the can, and which may then be caused to engage the bead by a slight turning, or a slight rotation of the member 33, thereby causing an interlocking between the member 33 and spout 35 and the can. A suitable resilient or expansive annular packing gasket 39 may be provided within the annular flange 37, as indicated particularly in Figures 12, 13 and 17, adapted to contact the bead 4, thereby to make a firmer seal against the passage of fluid through the hole 61 and through the spout 35.

I am aware that my invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiments to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

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

1. Grease dispensing apparatus comprising an original grease container having a generally cylindrical body, a top permanently secured to said body at one end, a bottom at the other end of said body, a lapped seam between said body and said bottom forming an outwardly projecting peripheral bead surrounding said last men-

tioned end of the body, manually operable means adapted for quick attachable and detachable engagement with said bead and said bottom for displacing said bottom from its initial position inwardly of the body of the container and for advancing it towards the other end of the container, a peripheral bead surrounding the top end of the body of the container and means including a discharge nozzle adapted for quick attachable and detachable engagement with said top bead.

2. A grease dispensing apparatus comprising an original grease container having a generally cylindrical body, a top member permanently secured to said body, a bottom member having a relatively large sized aperture disposed therein, said bottom member forming with said body a lapped seam projecting laterally from the body at the bottom end thereof, an inwardly removable second bottom member frictionally retained within said aperture, a packing disc disposed adjacent to said second bottom member and having its periphery in sealing contact with the inner wall of said cylindrical body, readily attachable and detachable gripping means for engaging said seam, a plunger carried by said gripping means in generally axial alignment with said container, a follower plate rigidly secured to the forward end of said plunger, and operable means for advancing said plunger and said rigidly secured follower plate to displace said inwardly removable second bottom member towards the opposite end of the container.

3. Grease dispensing apparatus comprising an original grease container having a generally cylindrical body, a top member permanently secured to said body, a bottom member having a relatively large sized aperture disposed therein, said bottom member forming with said body a lapped seam projecting laterally from the body at the bottom end thereof, an inwardly removable second bottom member of an overall diameter substantially equal to the internal diameter of the cylindrical body frictionally retained in said aperture, a packing disc disposed adjacent to said second bottom member and having its periphery in sealing contact with the inner wall of said cylindrical body, readily attachable and detachable gripping means for engaging said seam, a plunger carried by said gripping means in generally axial alignment with said container, a follower plate of an area covering the major part of the inwardly removable second bottom member, said plate being rigidly secured to the forward end of said plunger, and operable means for advancing said plunger and said rigidly secured follower plate to displace said inwardly removable second bottom member towards the opposite end of the container.

4. Grease dispensing apparatus comprising an original grease container having a generally cylindrical body, a top member permanently secured to said body, a bottom member having an aperture disposed therein, said bottom member forming with said body a lapped seam projecting laterally from the body at the bottom end thereof, an inwardly removable second bottom member of an overall diameter substantially equal to the internal diameter of the cylindrical body frictionally retained in said aperture, a packing disc disposed adjacent to said second bottom member and having its periphery in sealing contact with the inner wall of said cylindrical body,

readily attachable and detachable gripping means for engaging said seam, a plunger carried by said gripping means in generally axial alignment with said container, a follower plate of an area covering the major part of the area of the inwardly removable second bottom member, said plate being rigidly secured to the forward end of said plunger, and operable means for advancing said plunger and said rigidly secured follower plate to displace said inwardly removable second bottom member toward the opposite end of the container.

5. Grease dispensing apparatus comprising an original grease container having a generally cylindrical body, a top member permanently secured to said body, a bottom member having an aperture disposed therein and being permanently secured to said body, an inwardly removable second bottom member frictionally retained within said aperture and having a plate-receiving recess formed therein, a flat non-metallic packing disc disposed adjacent to said second bottom member and having its periphery in sealing contact with the inner wall of said cylindrical body, and operable means for advancing said inwardly removable second bottom member including a plunger in generally axial alignment with said cylindrical body and a follower plate of an area covering the major part of the area of said inwardly removable second bottom member, said plate being rigidly secured to the forward end of said plunger and adapted to fit within said plate-receiving recess, whereby said inwardly removable second bottom member may be advanced toward the opposite end of the container, thereby to expel the grease.

6. In lubricant dispensing apparatus, an original container for lubricant, and constituting a vendable grease-package unit, comprising a generally cylindrical body having at least one terminal member permanently affixed thereto at one end thereof, a generally flat piston formed from any suitable thin sheet metal slidably disposed within said cylindrical body at the opposite end thereof, the peripheral extremity of said piston being folded back upon itself thereby to increase the rigidity of said piston, and a packing disc formed from any suitable packing material disposed adjacent to said piston and supported thereby and having its periphery in sealing contact with the inner walls of said cylindrical body.

7. In lubricant dispensing apparatus, an original container for lubricant, and constituting a vendable grease-package unit, comprising a generally cylindrical body having at least one terminal member permanently affixed thereto at one end thereof, and a generally flat piston slidably disposed within said cylindrical body at the opposite end thereof and including a thin sheet metal disc having an annular peripheral groove formed therein, the peripheral extremity of said metallic disc being slightly spaced from the inner wall of said cylindrical body, a peripherally-projecting annular ring of any suitable resilient packing material disposed within said groove and in substantial sealing contact with said inner wall, and a flangeless fibrous packing disc disposed adjacent to said metallic disc at the leading side thereof and ahead of said resilient annular packing ring, and having its periphery in close sealing contact with the inner walls of said cylindrical body, whereby said piston will present a double seal to prevent the escape of grease thereby.

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