

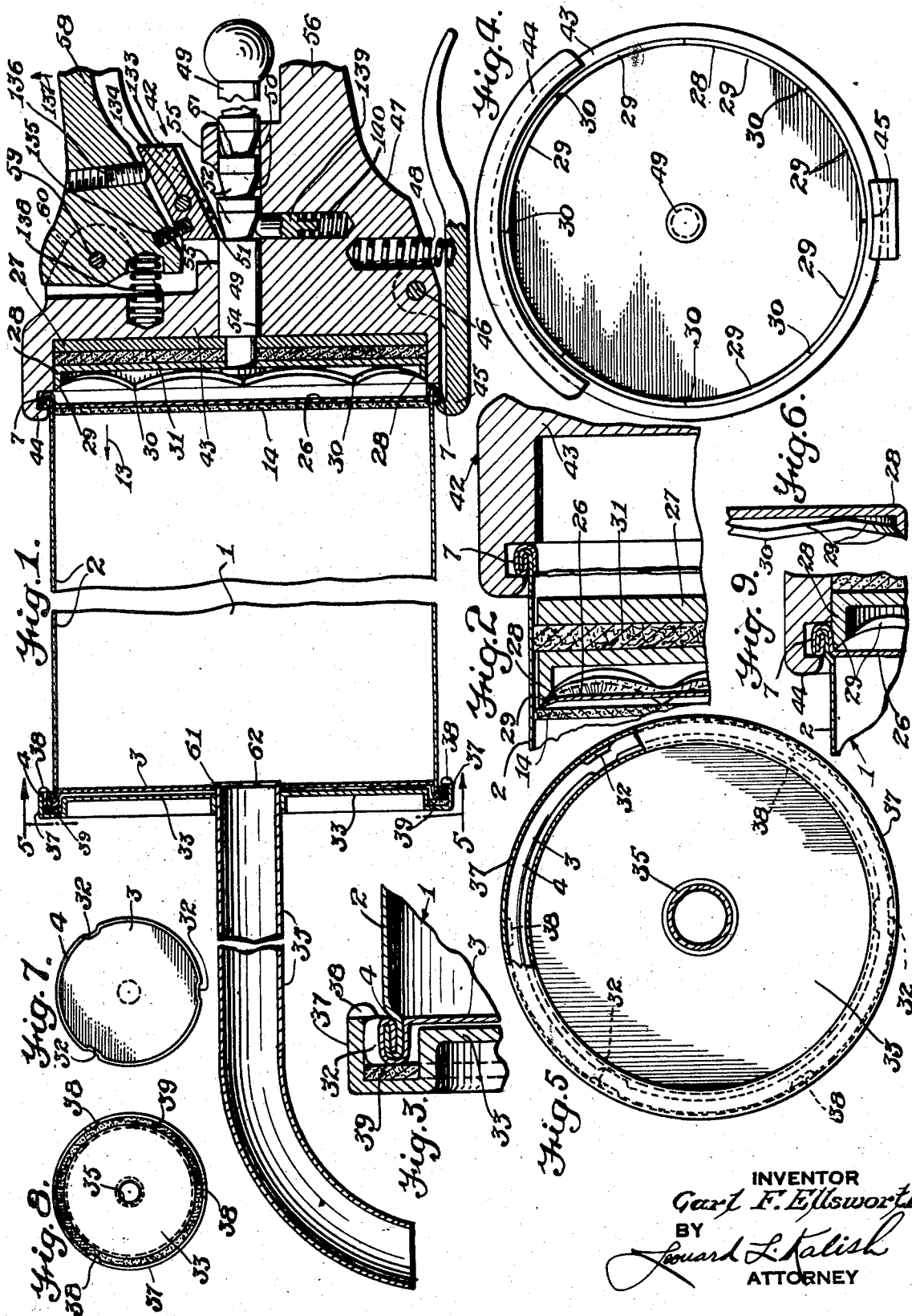
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GREASE DISPENSING MEANS

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GREASE DISPENSING MEANS

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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 drawing.

For the purpose of illustrating my invention, I have shown in the accompanying drawing 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 drawing, in which like reference characters indicate like parts.

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

Figure 2 represents a fragmentary sectional view, on a much enlarged scale, of the ejector means and can bottom, after the latter has been somewhat displaced towards the top of the can;

Figure 3 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 4 represents a front elevational view of the ejector means;

Figure 5 represents a front elevational view of the nozzle attaching means, taken generally on line 5—5 of Figure 1;

Figure 6 represents a fragmentary sectional view of a modified form of cutter forming part of the ejector means;

Figure 7 represents a top plan view of the top or discharge end of the can, on a much reduced scale;

Figure 8 represents a plan view of the can-engaging side of the nozzle attaching means, on a similarly reduced scale; and

Figure 9 represents a fragmentary section of the bottom, similar to that shown in Figures 1 and 2, but further modified.

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. 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 the bottom end member 26 seamed to the opposite end of the cylindrical side wall 2 along an interlapped seam 7 of any suitable or conventional construction. These opposite end members 3 and 26 are thus preferably permanently interlocked with the cylindrical side wall 2 along the annular lapped seams 4 or 7, in contradistinction to being frictionally held in place through the frictional engagement of generally parallel annular zones.

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, which matured into Patent No. 2,125,258 on July 26, 1938, and in co-pending ap-

plication Serial No. 741,768 filed August 28, 1934 which matured into Patent No. 2,125,259 on July 26, 1938, and of which this application is a division, 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 25 or press platen 27, which is suitably secured to the ram rod 49, as for instance by screw-threaded connection or by means of a rivet 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 27 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 drawing), 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 1) 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 can is 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 27 in the direction of the arrow 13 to the extent of one or more notches.

In Figures 1 and 2, I have illustrated a form of my invention, wherein the can bottom 26 may be fastened directly to the cylindrical body 2 of the container, having within it a packing gasket 14 formed of any suitable material such as cardboard, pasteboard, rubber or rubber composition. The ram rod 49 is provided with a follower plate 27, and an annular sheet metal cutter 28, having a series of generally annularly arranged, inwardly bevelled cutting edges 29, which meet at points 30 which are adapted first to penetrate the bottom of the can, thereby to lessen the force required to cut the bottom of the can out in a generally annular formation. These surfaces 29 may either be curved, or may be alternately inclined surfaces, as indicated in Figure 6. A packing gasket of suitably resilient or expansive material, 31, may be provided between the generally annular cutter 28 and the plate 27, to augment the packing action of the disc 14.

In order to permit the cutter 28 to more nearly approach the cylindrical body 2 of the container, the bead, designated generally by the numeral 7 may be off-set slightly in an outward direction, as indicated particularly in Figure 9, so that the outer diameter of the cutter 28 may be such as more or less snugly to fit within the inner diameter of the cylindrical body of the can, thereby to serve as a piston as well, in the ejection of the contents of the can.

In Figures 1, 3, 5, 7 and 8, 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, 2 and 9.

In this phase of my present invention, the top 3 of the can is without the conventional screw-threaded neck which detachably carries a screw-cap, 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 to form the opening 61, and may be covered (while the container is in storage or in transit, or otherwise unused) by a tin disc soldered in spots to the outside of the top and having a suitable pull-tab by means of which it may be torn off from the top in the conventional manner of sealing discs, or in the general manner of the soldered sealing member 38 shown in Figures 1 and 5 of co-pending application Serial No. 705,562 filed January 6, 1934, but merely in a flat form. 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 suit-

able 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 two, three 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, the end portion 62 of the spout 35 being projectable through the container wall 3. The circular scoring in the container wall 3 at the discharge end of the container (indicated particularly in Figure 7 by the small central dotted circle) facilitates the projection of the spout 35 through the end wall 3 at the discharge end of the container 1, by forming a weakened circular line defining a potential discharge opening which may be formed by any suitable means, as hereinabove mentioned. A suitable resilient or expansive annular packing gasket 39 may be provided within the annular flange 37, as indicated particularly in Figures 3 and 8, 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 the invention, what is hereby claimed as new and desired to be secured 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, said top being adapted to be opened to provide a discharge outlet, 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 mentioned end of the body, and manually operable means adapted for quick attachable and detachable engagement with said bead, said means having a cutter edge adapted to sever the bottom from the body, and means for advancing the severed bottom through the container toward the opposite end thereof to expel the grease therefrom.

2. In a lubricant dispenser in combination, an original lubricant package of substantially cylindrical side wall shape having a closed end adapted to be substantially wholly cut away, and means for cutting away said closed end and for forcing lubricant through an opening at the opposite end of the package comprising an annular knife engageable with said closed end adjacent the side walls to cut out said end, means for moving the knife toward the cartridge to perform said cutting operation, and means engageable with said cut out end to move it through the cartridge to force the lubricant therefrom.

3. In lubricant dispensing apparatus having an annular cutter for peripherally severing the closed end of an original generally cylindrical lubricant container, said cutter being thereafter axially advanceable through said container, a

rigid circular press platen of a diameter generally equal to the outside diameter of said annular cutter disposed behind said cutter and spaced axially therefrom, and a resilient packing gasket disposed between said cutter and said press platen and adapted to be compressed therebetween when the cutter is pushed axially through the container by said press platen, thereby to expand radially into intimate contact with the inner cylindrical wall of said container when said cutter is being axially advanced therethrough.

4. In lubricant dispensing apparatus, the combination with an original lubricant container having a generally cylindrical body, imperforate terminal discs permanently affixed to opposite ends thereof and forming therewith a completely sealed container and a non-metallic piston-like packing disc disposed within said container near one of said terminal discs and having its periphery in generally sealing contact with the inner wall of said cylindrical body, of means for severing the terminal disc nearest said packing disc from said cylindrical body, and means for jointly advancing the severed disc and said packing disc through said container, thereby to force lubricant from said container through an outlet formed in the opposite terminal disc.

5. In a lubricant dispenser, in combination, a generally cylindrically-shaped original lubricant container having a closed end adapted to be cut, an annular cutter for cutting said closed end, means for axially advancing the cut end through said container to the opposite end thereof, and packing for wiping the wall of said container during the axial movement of said cut end.

6. The combination, in a lubricant dispenser, of a generally cylindrical original lubricant container having an imperforate terminal portion adapted to be substantially wholly cut away, and means for cutting away said terminal portion and for forcing lubricant through a discharge outlet at the opposite end of said container comprising an annular cutter engageable with said imperforate terminal portion near the periphery thereof for cutting out said terminal portion, means for advancing said cutter toward said container to perform said cutting operation, and means for thereafter axially advancing said cutout portion through the body of said container to force lubricant therefrom through said discharge outlet.

7. In lubricant dispensing apparatus having an advanceable annular cutter for cutting out the end portion of an original lubricant container, means for forcing the contained lubricant through a discharge outlet in the opposite end portion of said container, comprising cutter-advancing means operable to force said cutter through one end of said original lubricant container, thereby severing a portion of said container end, and thereafter operable to jointly advance said severed end portion and said cutter axially through said container.

8. In lubricant dispensing apparatus, the combination with an original lubricant container having a generally cylindrical body and terminal discs permanently affixed to opposite ends thereof and forming therewith a completely sealed container, of annular cutting means for peripherally severing one of said terminal discs from said container upon relative axial movement between said container and said annular cutting means, and means for axially advancing the severed disc through the container, thereby to force

lubricant through an outlet formed in the other terminal disc.

9. In lubricant dispensing apparatus, an original container for lubricant constituting a vendible grease package unit comprising a generally cylindrical body having imperforate terminal metallic discs affixed to opposite ends thereof and forming therewith a completely sealed container, one of said terminal discs being permanently affixed to said cylindrical body along an annular lapped seam projecting longitudinally of said body, said annular seam having an inside diameter substantially equal to the inside diameter of said cylindrical body, whereby said disc may be peripherally severed from the cylindrical body at said lapped seam by an annular cutter having a cutting edge diameter substantially equal to the inside diameter of said cylindrical body, and the other of said terminal discs being adapted to be opened readily to provide a lubricant discharge outlet therethrough, and means for advancing said first-mentioned terminal disc through the body of the container thereby to expel the grease contents thereof through said discharge outlet.

10. In lubricant dispensing apparatus, an original container for lubricant constituting a vendible grease package unit comprising a generally cylindrical body having imperforate terminal metallic discs affixed to opposite ends thereof and forming therewith a completely sealed container, one of said terminal discs being permanently affixed to said cylindrical body along an annular lapped seam offset radially outwardly relative to said cylindrical body with the radially innermost surface of said seam in substantial alignment with the inside surface of said cylindrical body, whereby said disc may be peripherally severed from the cylindrical body at said lapped seam by an annular cutter having an outside operating diameter substantially equal to the inside diameter of said cylindrical body, and the other of said terminal discs being adapted to be opened readily to provide a lubricant discharge outlet therethrough.

11. In lubricant dispensing apparatus, an original container for lubricant constituting a vendible grease package unit comprising a cylindrical metallic body having generally flat and imperforate terminal metallic discs permanently affixed thereto and forming therewith a completely sealed container, one of said terminal discs being adapted to have a discharge outlet formed therein by inwardly directed external axial pressure, and the other terminal disc being adapted to be peripherally severed from said cylindrical body by inwardly directed external axial pressure, and a non-metallic piston-like disc disposed within said sealed container in proximity to said severable terminal disc.

12. In lubricant dispensing apparatus, an original container for lubricant constituting a vendible grease package unit comprising a cylindrical metallic body having generally flat terminal metallic discs permanently affixed thereto and forming therewith a completely sealed container, one of said discs being adapted to be opened to provide a discharge outlet for said container, and the other of said metallic discs being imperforate and adapted to be peripherally severed from said cylindrical body by inwardly directed external axial pressure, and a non-metallic piston-like disc disposed within said sealed container in proximity to said imperforate metallic disc.

13. In lubricant dispensing apparatus, an orig-

inal container for lubricant and constituting a vendible grease package unit comprising a generally cylindrical metallic body having generally flat and imperforate terminal metallic discs permanently affixed thereto, and forming therewith a completely sealed container, said terminal discs being adapted to have openings formed therein by inwardly directed external axial pressure, and a flat non-metallic piston-like member of comparatively small dimension in an axial direction disposed within said container near one of said terminal discs.

14. In lubricant dispensing apparatus, an original container for lubricant and constituting a vendible grease package unit comprising a generally cylindrical metallic body having generally flat and imperforate terminal metallic discs permanently affixed thereto, and forming therewith a completely sealed container, said terminal discs being adapted to have openings formed therein by inwardly directed external axial pressure, and a flat piston-like member disposed within said container near one of said terminal discs.

15. Lubricant dispensing apparatus comprising a device having a space to receive the end of a can, means for holding a can with its end in said space, an advanceable annular cutter having a substantially continuous cutting edge for cutting out said end of the can when axially advanced therethrough, and means for effecting relative movement of said can and the cut-out end to discharge the contents of the can through a discharge opening provided at the opposite end of said can.

16. Dispensing apparatus having a substantially ring-shaped knife for cutting out one end of a container, and means for effecting relative movement between said container and the cut-out end to discharge the contents of the container through a discharge outlet provided at the opposite end of said container.

17. Apparatus for dispensing lubricant from a generally cylindrical original lubricant container having an imperforate terminal portion adapted to be cut away, said apparatus including an advanceable annular cutter for cutting away said terminal portion, and means for advancing said cut-out portion through the body of said container to force lubricant therefrom through a discharge outlet provided at the opposite end of said container.

18. In lubricant dispensing apparatus having an advanceable annular cutter for cutting out the end portion of an original lubricant container, means for forcing the contained lubricant through a discharge outlet at the opposite end of said container, comprising cutter-advancing means operable to force said annular cutter through one end of said original lubricant container to sever a portion of said container end, and means for thereafter advancing said severed end portion through said container.

19. In lubricant dispensing apparatus of the class described, flow-conducting means operatively engageable with the discharge end of an original lubricant container and including a portion projectable through the container wall at said discharge end, a generally annular sealing portion surrounding said projectable portion and operatively engageable with said container, and means for applying sealing pressure between said annular sealing portion and said container, to prevent leakage of lubricant thereby, said latter means being automatically operable upon the

engagement of said flow-conducting means with said container discharge end.

5 20. Lubricant dispensing apparatus having flow-conducting means operatively engageable with the discharge end of a lubricant container, said flow conducting means including a portion projectable through the container wall at said discharge end, an annular cutter for cutting out

the opposite end of said lubricant container, and means for applying pressure to the cut-out end of said container to advance it through the container towards the discharge end thereof, thereby to discharge the container contents through said flow-conducting means. 5

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