

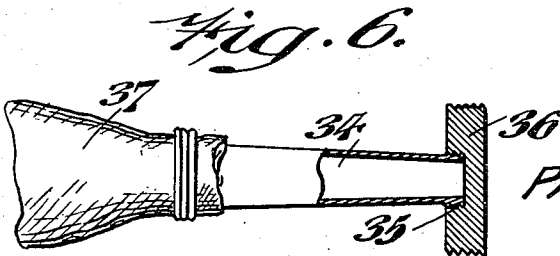
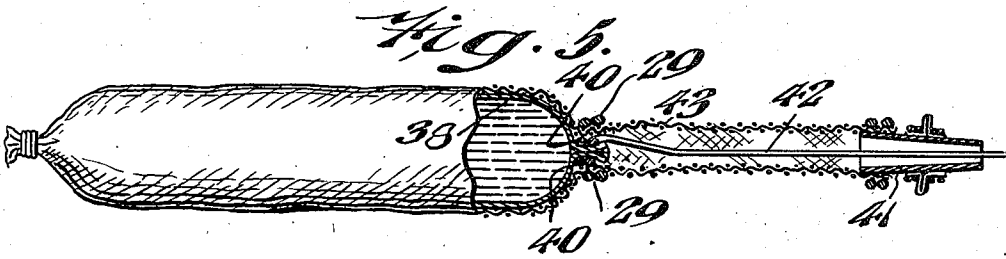
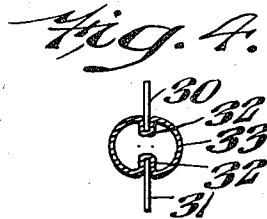
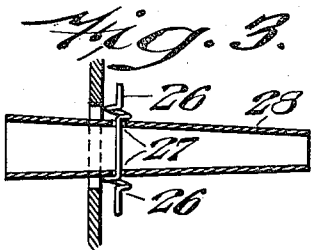
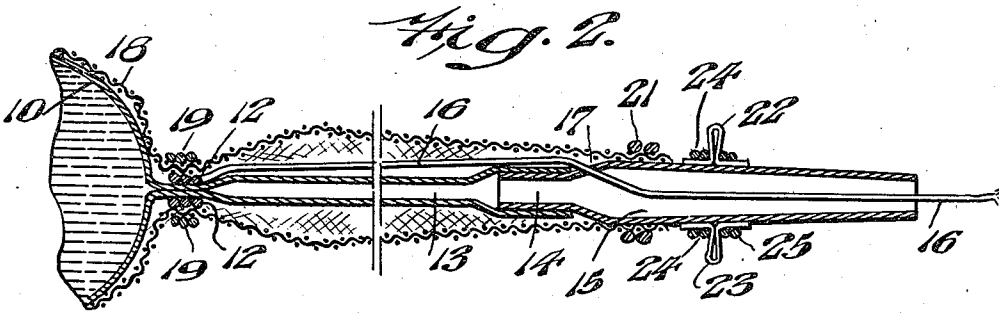
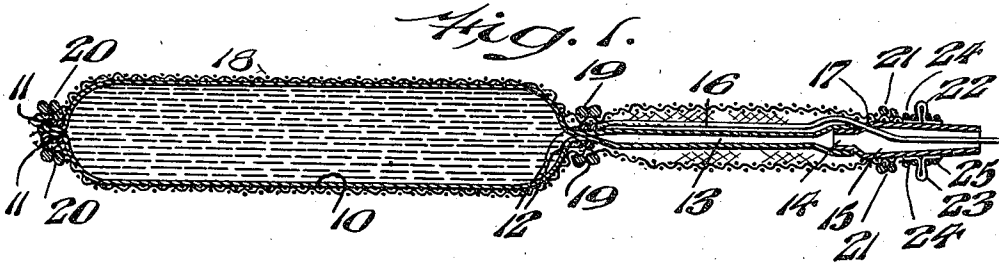
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GREASE PACKAGE

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GREASE PACKAGE

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9 Claims. (Cl. 221-69)

This invention relates to grease packages.

The packaging of heavy greases and other lubricants and the transfer of such grease from the package to its ultimate point of use, such for instance as into the transmission and differential cases of automotive vehicles, presents numerous problems, that, so far as known, have not been met previous to this invention. It has been common practice heretofore to provide a metal receptacle from which the grease was drawn by a hand or other pump, from which latter in turn it was ejected by manual or other pressure into the case. The transfer from container to pump was always a smeary and messy operation, especially as, owing to limitations on pump and can sizes, it frequently had to be repeated several times for a single charge. Owing to the viscosity of such greases the complete filling of the pump was practically impossible as the column of grease was interrupted by air pockets which made the emission of grease from the pump non-continuous and sputtery performances, and, of more importance, which militated against the exact measurements of the dispensed grease that are sometimes necessary.

It is among the objects of this invention to provide a dispensing package for grease which is durable, strong, and of low manufacturing and filling cost; to provide a dispensing package for grease comprising a preserving chamber and a dispensing nozzle so arranged as to retain the grease in its chamber despite its manipulation and transportation until it is predeterminedly desired to have it pass through the nozzle; to provide a non-metallic dispensing package for lubricants of strength and durability such as can be stored for long periods without disintegration under the lubricant; to provide a cheap and effective dispensing package for lubricants that can be used to contain and transport, then to dispense the lubricant, which can then be economically discarded; and other objects and advantages will become more apparent as the description proceeds.

In the accompanying drawing forming part of this description:

Fig. 1 represents a longitudinal section through a preferred embodiment of a package according to this invention,

Fig. 2 represents a fragmentary longitudinal section of the same on a slightly enlarged scale,

Fig. 3 represents a fragmentary section of a nozzle and retaining wire according to this invention,

Fig. 4 represents a transverse section through

a modified form of nozzle according to this invention,

Fig. 5 represents an elevation partially in section of a modified form of the instant invention, and

Fig. 6 represents a fragmentary elevation, partially in section, of a still further modified form of nozzle.

There are certain problems incident to the packaging of both light and heavy greases that are more or less peculiar, but which must be accorded consideration in any attempt to package and dispense same. One is the destructive and disintegrating action of the materials on certain proposed packaging materials, and the other is the staining and smearing action of the goods. In conventional manual pumps where the pump cylinder has an end extended into an opened can of grease, it is necessary that the pump cylinder be pressed down in the body of the lubricant as its piston is retracted in order to properly charge the cylinder against the dispensing outward stroke of the piston. This cannot be accomplished satisfactorily without getting some of the material on the outer surface of the cylinder with consequent unpleasantness to the operator. The viscosity of the greases makes difficult their handling by the conventional pumping methods and devices.

The invention herein comprises essentially a flexible compressible grease-tight, preferably non-metallic, durable container with an associating dispensing nozzle in operative relation and of such small cost that the grease may be moved by manual pressure on the compressible walls of the container to urge the grease outwardly through the nozzle, and which, when empty, may with economy be discarded.

Referring to Fig. 1 there is disclosed a preferred but purely illustrative form of invention, in which a cylinder of material such as a cellulose derivative such as "Cellophane" or the like, hereinafter designated as "Cellophane", forms the oil and grease tight non-disintegratable inner container tube or grease chamber. This "Cellophane" chamber is preformed as a cylinder of the desired diameter, and at its outer end is crimped and sealed with suitable ties 11, assisted if need be by suitable cement or other adhesive. The cylinder is constricted at its other end by a suitable removable tie 12 so that a predetermined measured quantity of the lubricant can be disposed between the two crimped constricted portions of the "Cellophane" cylinder. The "Cellophane" cylinder carries on beyond the

tie or wrap 12 in a more or less restricted crimped and flexible dry conduit 13, the outer free end which is adhesively secured to the inner end 14 of a substantially rigid nozzle 15. It will be understood that the dry conduit 13 will be sealed in an oil-tight relation to the rigid nozzle by whatever means is found most expedient, such as by adhesives and by auxiliary restraining ties and the like (not shown). As a feature of interest the tie 12 constricting the dry conduit may connect with a cable or pull device 16 extending in parallelism with the conduit 13 and passing through a restricted hole 17 in the wall of the rigid nozzle 15, to pass outwardly through the end of the nozzle 15. The tie 12 and pull string 16 are so arranged that upon pull on string 16 axially and outwardly of the nozzle the tie 12 will be liberated and permit the lubricant contained in the cylinder 10 to enter the conduit 13 and to pass through the nozzle 15.

While it will be appreciated that the "Cellophane" container may be arranged as the ultimate cover for the lubricant, through the walls of which the contained material may be observed for purposes of sale, yet for certain purposes it is contemplated that an outer protecting and reinforcing but flexible preferably non-metallic housing will be provided. To this end a jacket 18, of duck, oilcloth, canvas, or other flexible preferably woven material will be superimposed upon the inner receptacle, being fastened at one end by suitable twisted constricting means 20 and at the other by readily removable ties 19, and, in the weaving or other formation, being suitably restricted to fit rather closely both about the cylinder 10 and about the channel 13, to be constricted tightly upon the rigid nozzle 15 at the nozzle end by suitable constricting ties 21. For safety it is contemplated that the sealing of the neck and of the nozzle can be combined. It is contemplated that the external jacket 18 may be composed of a secondary "Cellophane" wrapping which reinforces and strengthens the whole assembly without reducing the visibility of the contained material. The ties may be clamps or the like, as will be clear.

It will be clear that a highly satisfactory closure can be had by twisting the neck 13 of the cylinder and clamping it in its twisted relation by suitable means such as friction tape, clamps, or the like (not shown) and which latter is held against undesired opening by external ties 19 constricted about cover 18. Removal of the outer ties 19 permits the inner tie or clamp to be ruptured upon comparatively slight pressure on cylinder 10, permitting the untwisting of the channel 13 and the free emission of the viscous contents.

The substantially rigid nozzle 15 may be of any sort of material, whether of metal or composition material, and is preferably of such reduced outer diameter as to be insertable into the conventional filling openings in the cases to which they are applicable, but obviously has as large internal diameter as possible in order to restrict the flow as little as possible. It is of importance that when the nozzle has been inserted in the opening in the case to be filled or partially filled, that inadvertent and accidental withdrawal of the nozzle be obviated, and to this end suitable, more or less flexible, retaining devices may be utilized. As shown in Figs. 1 and 2 resilient lugs 22 and 23 are diametrically disposed on nozzle 15, and suitably held thereon, as by retaining bands 24 and 25, in such manner that the

nozzle may be pushed into operative disposition in the opening in the casing and will be held therein by the lugs so as to require the bending of the lugs by an affirmative or positive pull to retract the nozzle. As shown in Fig. 3 a modified form of such retaining device may be found in the transversely disposed short wire 26 mounted in registering openings 27 in a modified nozzle 28, the operation of which will be clear. In Fig. 4 a transverse section through the nozzle is illustrated in which resilient wires 30 and 31 are disposed in longitudinal channels 32 crimped inwardly in a nozzle 33, which is preferably elliptical in form so that the effective cross-sectional area is not diminished.

In every case a preferred form for the dispensing nozzle is a tapered tube with a circular cross-section at the small end gradually expanding into an elliptical cross-section toward the large end. The elliptical cross-section insures clearance between the dispensing nozzle and the circular filling hole, permitting excess lubricant to pass outwardly of the casing to be visible to the operator to indicate that the proper lubricant level has been reached within the casing.

As a further modified form of the invention a flexible casing 38 is provided in Fig. 5 which is sealed by a constricting tie 40 or by other means. The casing 38 may be opened through a pull string 42 which is in connection with tie 40 and extends outwardly through the nozzle 41. Another method of opening case 38 is with a nail (not shown) inserted through the nozzle 41, piercing casing 38. An external semi-impervious casing 43 houses the entire assembly and serves as a dispensing neck for the lubricant. Casing 43 is tied permanently on the outer end and by a removable constricting tie 29 between casing 38 and the neck part of casing 43.

In Fig. 6 a further modified form of the invention is disclosed in that the nozzle 34 communicates directly with the flexible container chamber 37, and is sealed by a threaded cap 35 or similar means. The lubricant content is maintained and stored in the chamber 37 and in the nozzle 34 at all times subject to the restraint of the cap 35. Obviously the outwardly sealed nozzle can be used with any form of invention, and can replace the ties 12 and 40 as well as the nozzles.

The filling and sealing of the packages will be clear as well as the manifest advantages of the package for storage, transportation and extrusion of the contents without expensive dispensing apparatus and without soiling the operator in hands or clothing.

I claim:

1. A package for lubricants comprising a chamber, the walls of which are made of cellophane, a channel formed of cellophane in communicable relation to the chamber and an inflexible nozzle to which the channel is secured.

2. A package for lubricants comprising a chamber, the walls of which are made of cellophane, a channel formed of cellophane in communicable relation to the chamber and an inflexible nozzle to which the channel is secured, and means normally sealing off the chamber from the channel but operable to establish communication therebetween.

3. A lubricant package comprising a flexible inner tube, means permanently closing one end of the tube, a constricting device temporarily closing the other end of the tube, means for liberating the constricting device, a flexible hous-

ing for the inner tube, and a nozzle to which the tube and housing are connected.

5 4. A lubricant package comprising a flexible inner tube, means permanently closing one end of the tube, a constricting device temporarily closing the other end of the tube, means for liberating the constricting device, a flexible housing for the inner tube, and a nozzle to which the tube and housing are connected, and means 10 operatively associated with the nozzle for holding it in place in a casing opening during manipulations of the tube.

15 5. A dispensing container for viscous liquids consisting of an impervious and grease resisting flexible chamber containing the liquid and sealed during transport, a semi-impervious and semi-grease resisting dispensing neckpiece, a nozzle operatively communicating with the neckpiece, and means to liberate the grease in said 20 chamber for dispensing the grease through the neck and nozzle.

25 6. A package for lubricants comprising a chamber, a channel formed in communicable relation to the chamber, a nozzle to which the channel is secured and means normally sealing

off the chamber from the nozzle but operable to establish communication therebetween.

7. A container for lubricants comprising a collapsible chamber, a channel formed in communicable relation to the chamber and a substantially 5 rigid nozzle to which the channel is secured.

8. A package for lubricants comprising a chamber, a pouring nozzle in communicable relation to the chamber, means to close the outer end of the nozzle and a constricting device between said chamber and nozzle, normally sealing 10 off the nozzle from the chamber but operable to establish communication therebetween.

9. A lubricant container composed of a lubricant-impervious collapsible chamber and a communicatively attached tapered pouring nozzle so 15 characterized that the outer small end of the tapered nozzle is of circular cross section gradually expanding into an elliptical cross section toward the large end, in order to insure clearance 20 between the pouring nozzle and the circular filling hole, permitting excess lubricant to pass outwardly of the casing, visibly indicating to the operator that the proper lubricant level has been reached within the casing. 25

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