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MECHANISM FOR LOADING GREASE GUNS

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The present invention relates to a novel means and mechanism for loading grease guns directly from the grease container and especially to a novel type of follower plate for a grease container and so constructed and arranged as to facilitate and most effectively withdraw the grease from the container with a standard type of grease gun.

In the handling of grease for greasing or lubricating purposes, difficulty has been encountered in filling the grease gun. This grease or lubricant is of such consistency and will not flow except when forced by pressure. Generally it is delivered by the manufacturer in pails and the grease gun for receiving the grease for lubricating or greasing the parts, is filled with grease and the gun then applied to the desired parts, bearings or fittings by the application of pressure to a handle provided on the gun.

Among the objects of the present invention is the provision of a novel follower plate located upon the mass of grease within the pail and provided with novel sealing means for sealing the end of a grease gun to prevent the entrance and pocketing of air beneath the follower plate and to facilitate withdrawal of the grease from the container.

Another object of the present invention is to provide a novel means and method of loading a grease gun directly from the grease pail as received from the manufacturer, and to assure the gun being accurately filled with a measured quantity of the grease or lubricant. This is made possible by the novel construction and arrangement of follower plate and the manner of locating and sealing the open end of the barrel of the grease gun during the filling operation.

A still further object of the present invention is the provision of a novel follower plate that may be employed in any standard form of grease pail and provided with novel means for quickly and positively sealing the end of the grease gun about an opening in the follower plate, and thereby assuring that no air will leak by or be pocketed while the gun is being filled with grease.

Further objects of the invention are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

The invention further resides in the construction, combination and arrangement of parts illustrated in the accompanying drawings, and while there is shown therein a preferred embod-

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ment, it is to be understood that the same is susceptible of modification and change, and comprehends other details, arrangements of parts, features and constructions without departing from the spirit of the invention.

In the drawings:

Figure 1 is a view in vertical cross-section of a grease pail of a type now employed and as received from the manufacturer, the lid of the pail or container having been removed and the gun applied to the follower plate with which the pail is supplied.

Figure 2 is a view in vertical cross-section through a lid for the pail or container of Figure 1.

Figure 3 is a view in vertical cross-section through an alternate construction of container and follower plate, the cap or closure having been removed from the lid and the position of the grease gun shown in dotted outline.

Figure 4 is an enlarged fragmentary view in vertical cross-section of the follower plate disclosed in Figure 3 and showing the manner of applying the grease gun during the filling operation.

Referring more particularly to the disclosure in Figures 1 and 2 of the drawings, the embodiment therein selected to illustrate the invention comprises a standard form of grease pail 1 or container having the usual handle 2 and lid 3 provided with a flanged edge 4 adapted to seat upon the upper edge of the pail and crimped over the bead 5 thereon to seal the contents until ready for use. A follower plate 6 is preferably provided in the pail as it is delivered from the manufacturer, although it may be provided separately and then positioned upon the upper surface of the grease or lubricant 7. This grease is of such consistency that it does not readily flow and requires pressure to cause it to flow.

The follower plate 6 is preferably crowned or domed slightly as shown in Figure 1 and its central portion 8 so contoured as to provide an annular depression or recess 9 and a central upstanding flange or collar 10 forming a guide for directing the lower open end 11 of the grease gun 12 into the depression or recess and against a ring of resilient and semi-plastic sealing material 13. The sealing material is such as to provide an air-tight cushioned seal between the end 11 of the grease gun barrel 14 and the follower plate upon the exertion of a slight downward pressure to the gun. For this purpose, the material of the seal is resilient and readily deformable by the pressure applied to the gun so as to tightly encompass and seal the end of the barrel

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14, but also of such depth or mass and consistency as to seal even though the barrel 14 may be disposed at a slight angle with the vertical. The sealing material employed should also be of such nature as to closely adhere to the surfaces forming the recess to prevent air from leaking between it and the plate.

The periphery or outer circumference 15 of the plate extends to and closely follows the contour of the interior of the pail so as to prevent the grease from passing therebetween and when the barrel of the gun is held firmly against the seal and the handle 16, stem 17 and plunger or piston 18 of the gun are elevated by pulling upwardly on the handle, grease flows in a measured or predetermined amount into the barrel of the gun. As the novel form of follower plate and the novel manner of sealing the end of the barrel to the follower plate prevents the entrance and entrapment or pocketing of air below the plate, the operator is assured of filling the gun with grease from the pail.

In Figures 3 and 4 is shown an alternate form of pail or container 19 having a lid 20 provided with a flanged edge 21 adapted to seat over the edge 22 of the pail or container and crimped thereover. This lid is preferably depressed and provided with a central opening 23 defined by an upstanding neck or collar 24 encompassed by an annular recess 25. The opening is of such size as to readily receive the barrel 14 of the grease gun 12 and the neck or collar preferably threaded to receive a standard screw cap 26 or a sealing cap of the type that may be removed by pressure applied thereto. Regardless of the type of sealing cap employed, it is preferable that the cap be countersunk below the top of the lid to permit stacking of the containers in shipment.

Positioned within the pail or container 19 is a follower plate 27. This plate is preferably crowned or domed and provided with a centrally disposed opening 28 defined by an upstanding neck or flange 29. Encompassing the neck or flange is a spaced collar 30 forming an annular recess or depression 31 between it and the neck and in which a ring of resilient and semi-plastic sealing composition 32 is provided. This collar may be formed integral with the plate or provided separately and suitably secured thereto as by welding or the like.

The periphery or outer circumference 33 of the follower plate is slit and crimped or deformed to provide spaced projections or fingers 34 and 35 with alternate projections bent in opposite directions and adapted to secure therebetween the inner edge of an annular gasket or sealing ring 36. The outer edge of this gasket or ring seats against and has a wiping contact with the interior of the pail or container and thereby retains the interior clean and compensates for any dents in the walls of the container.

The follower plates shown in Figures 2 and 4 may be formed of metal, plastic, fiber or other material having sufficient rigidity and strength to maintain its shape under operation conditions. In both forms of the follower plate the barrel of the grease gun is resiliently held and sealed by the novel method of self-sealing in the center of the follower plate. This self-sealing is accomplished by means of the resilient and plastic or semi-plastic ring of material disposed in an annular recess between a guiding flange and an encompassing part or collar, with the sealing material being of such consistency as to provide an air-tight, cushioned seal between the end of the

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grease gun barrel and the follower plate upon the exertion of a slight downward pressure. The natural movement of holding the barrel while withdrawing the plunger or piston in the pump barrel provides sufficient pressure to tightly embed or seat the open end of the barrel in the plastic composition and thereby seal this end while the vacuum created by withdrawing the plunger allows the atmospheric pressure to force the follower plate down in the pail or container whereupon the grease flows freely into the gun barrel.

To assure removal of all the grease from the pail, the base or bottom 37 thereof may be domed or elevated adjacent its central portion in a manner similar to the contour of the follower plate 27, as more clearly shown in Figure 3. This has the added advantage of permitting stacking of the pails without danger of damage to the cap 36 of the adjacent pail, even though this cap may project above the upper rim of the lid or closure 20.

From the above description and the disclosure in the drawings, it will become apparent that the invention comprehends a novel form of follower plate and a novel means and method for filling grease pumps in a simple operation by holding and seating the open end of the gun barrel over a central opening in the follower plate. This novel means and method prevents the entrapment of air and assures filling the gun. These follower plates are so designed and constructed as to accommodate the lower end of the barrel of any standard form of grease pump. As shown in Figures 2 and 4, this lower end of the barrel is generally threaded for threaded connection to a suitable fitting for greasing purposes. However, these threads are not employed in sealing the gun barrel with the follower plate as this sealing is automatically and most effectively accomplished by merely pressing the end of the barrel against the sealing composition disposed in the annular channel or recess provided centrally of the follower plate.

Having thus disclosed the invention, I claim:

1. A follower plate for use in filling the barrel of a grease gun from a pail of grease, comprising a substantially rigid disc-like member loosely seating upon the mass of grease in the pail and movable with the contents as the contents are withdrawn, said member having a domed central portion from which domed portion the member slopes outwardly and downwardly to an outer peripheral edge extending to and closely conforming to the interior of the pail, a centrally disposed and upstanding rigid annular flange in the domed portion defining a central opening, said domed portion having an upwardly projecting wall extending beyond the upper edge of the flange and providing therewith an upwardly opening annular recess surrounding the flange and opening, said flange providing a guide adapted to be loosely received within the gun barrel and directing the gun barrel over the flange, and a ring of readily deformable and resilient sealing composition disposed within the base of the recess encompassing the flange and against which the lower open end of the gun barrel seats during the filling operation, whereby to automatically seal this open end as the barrel is held against the sealing composition while withdrawing the plunger in the gun.

2. Mechanism for loading plunger type grease guns directly from a grease container, consisting of a substantially rigid follower plate seating

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upon the grease in the container and provided with an outwardly and downwardly inclined peripheral edge and a rigid central domed portion having an upstanding rigid annular flange defining a central opening for withdrawal of the grease and an upwardly projecting wall of substantially the height of the flange and providing with the flange an upwardly opening and relatively deep annular depression encompassing the flange, said flange being of less diameter than and adapted to receive the open end of a grease gun with the flange loosely received in the open end of the gun, and a resilient sealing composition disposed in the base of the depression whereby when the open end of the gun is located in the depression between the flange and upwardly projecting wall, mere holding the gun in contact with the resilient sealing composition as the plunger is withdrawn provides sufficient pressure

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against the sealing material to seal the end of the gun while the vacuum created by withdrawing the plunger permits the atmospheric pressure to force the follower plate downwardly into the container and cause the grease to flow freely into the open end of the gun.

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