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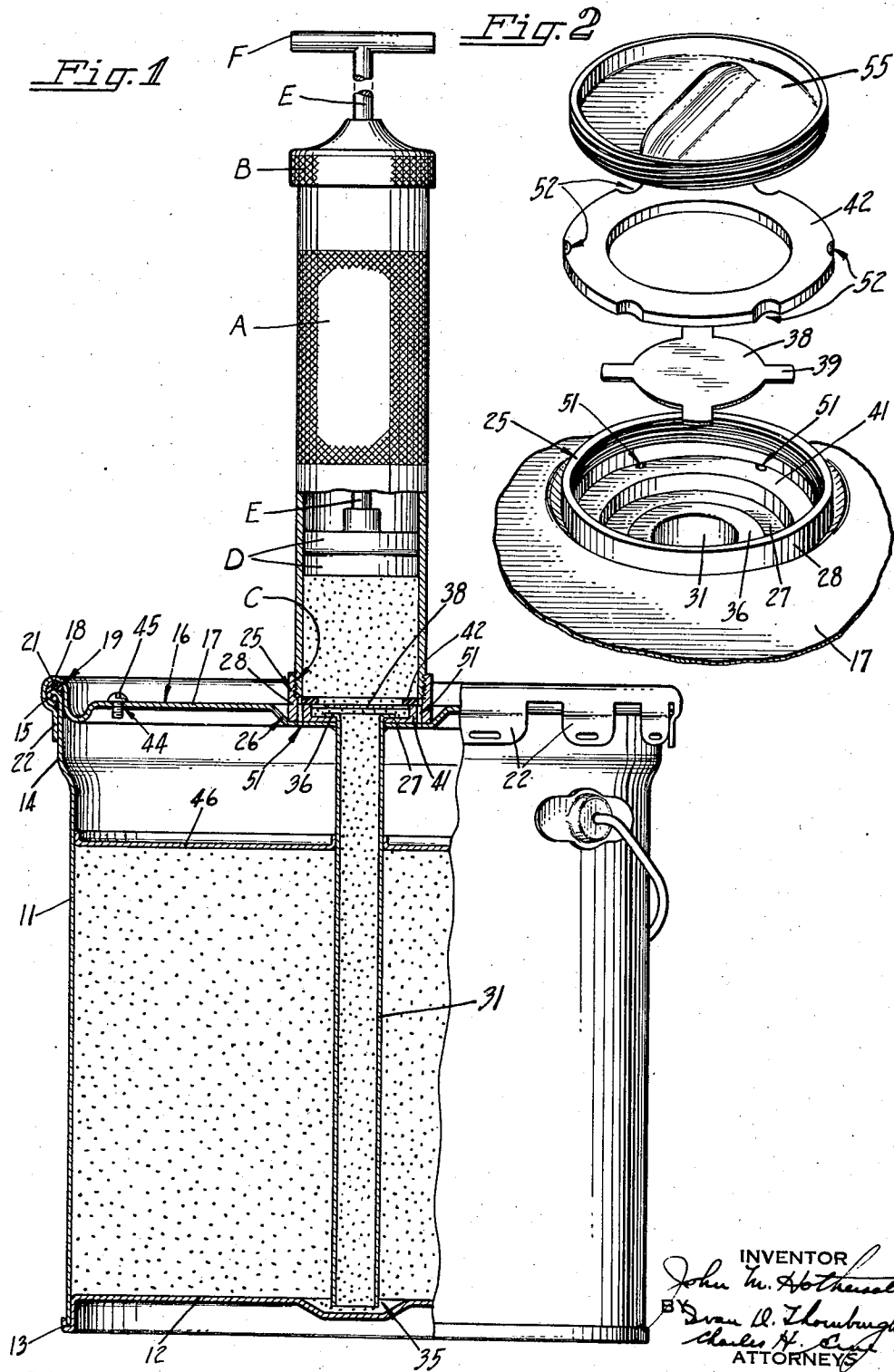
J. M. HOTHERSALL

2,268,592

DISPENSING CONTAINER

Filed March 21, 1940

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 3

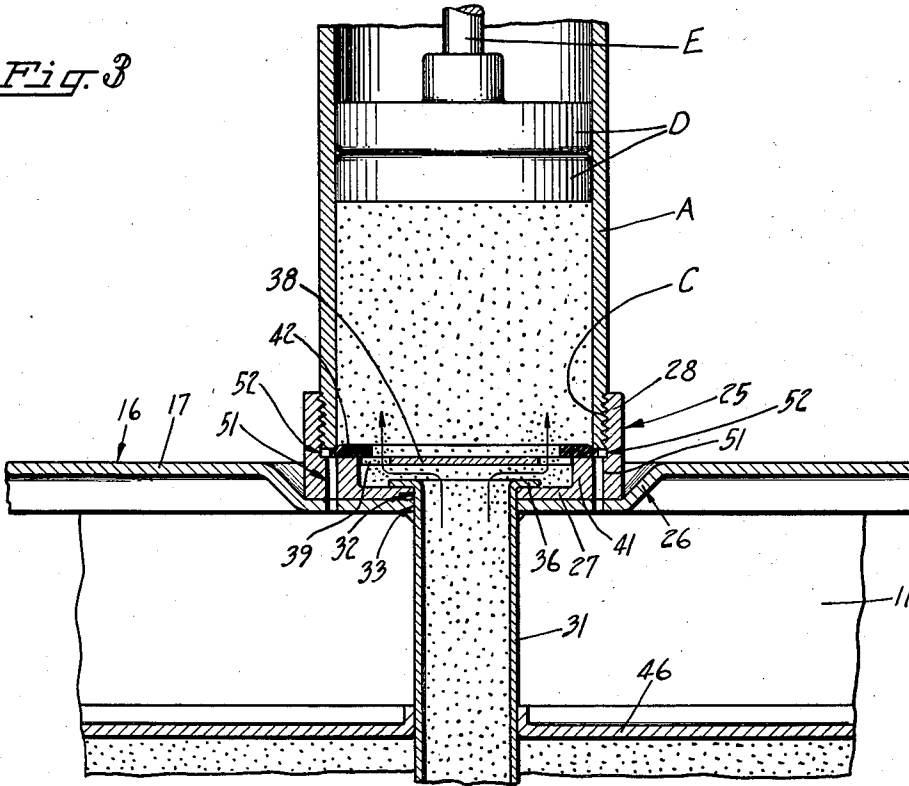
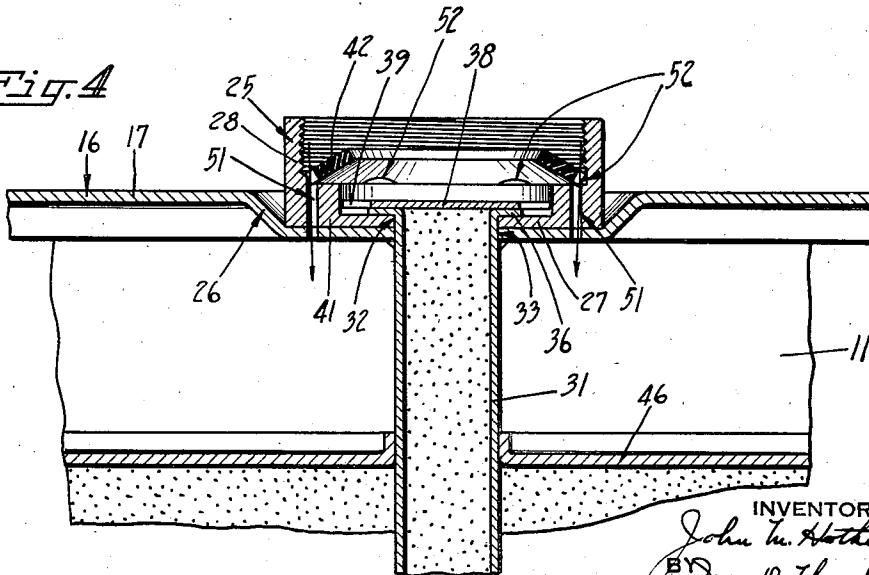


Fig. 4



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# UNITED STATES PATENT OFFICE

2,268,592

## DISPENSING CONTAINER

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5 Claims. (Cl. 221—47.5)

The present invention relates to dispensing containers for lubricating grease and the like and has particular reference to an improved container having a valve device to which a grease gun lubricator may be temporarily attached for filling.

In some types of dispensing containers for grease in which the grease is drawn up into the gun when it is affixed to the container, it has been found that light greases of a semi-liquid nature having an S. A. E. rating of around 110 or a consistency of 340 to 370, fall back in the container when the gun is being detached and air enters where the grease should be, hence at a subsequent filling of the gun this air is drawn into the gun with the result that it is only partly filled.

The instant invention contemplates overcoming this difficulty by an improved valve device in the container which prevents the entrance of air into the grease passageways during filling of the gun and also during its detachment.

An object therefore of the invention is the provision of a lubricating grease container having a one way valve for cooperation with a gun lubricator adapted to be filled by attachment to the container wherein the valve permits the flow of grease into the gun upon manipulation thereof but prevents air from entering the grease passageways in the container when the gun is detached so that the gun will draw its full capacity of grease from the container at each filling.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a part side elevation and part vertical sectional view of a dispensing container embodying the instant invention, the view showing a grease gun in position on the container, with portions of the gun broken away and shown in section;

Fig. 2 is an enlarged and exploded perspective detail view of the nozzle section of the container, the view showing the various parts located in the nozzle; and

Figs. 3 and 4 are greatly enlarged fragmentary vertical sectional views of the nozzle portion of the container, Fig. 3 showing the gun secured in place on the nozzle during a filling action and Fig. 4 showing the gun removed.

As a preferred embodiment of the instant in-

vention the drawing illustrates a sheet metal container comprising a cylindrical body 11 (Fig. 1) having a bottom closure 12 secured thereto in a suitable seam 13. The upper portion of the body is preferably enlarged as indicated at 14 and this enlarged portion terminates in a smooth outwardly bent edge curl 15 which defines the mouth of the container.

After the container is filled with its contents it is closed and sealed with a cover 16. The cover is preferably formed with a countersunk panel 17 which is surrounded by an inverted U-shaped channel section 18 enclosing an annular channel 19. The channel space retains a resilient sealing gasket 21 and when the cover is in place on the container body the gasket seats tightly on the body curl 15 while the channel section 18 fits down over the curl. Depending tabs 22 formed on the outer edge of the cover extend down adjacent the side of the container body and are bent inwardly under the curl 15 and thus hold the cover tightly in sealing position on the container.

Such a container is especially designed for lubricating greases and the like which are adapted to be filled into and dispensed from the well known grease gun type of lubricator such as disclosed in United States Patent 1,692,423, issued November 20, 1928, to A. T. Shere on Grease gun. Such a gun preferably includes a tubular body A having at one end a cover B and at the other end a threaded section C on which the dispensing nozzle of the gun is secured. Within the gun body there is a piston D secured to a piston rod E which extends through the cover B and terminates in a handle F.

In the container of the instant invention the gun itself, after its dispensing nozzle end has been removed, is adapted to be applied to the top end of the container and filled without having to move or tilt the container or the gun. For this purpose the cover 16 of the container is provided with a cylindrical cup shaped dispensing nozzle 25 (see also Figs. 2, 3 and 4) which is preferably located at the center of the cover and disposed in an auxiliary countersunk panel 26. The nozzle includes a bottom wall section 27 which is preferably spot welded to the cover and also includes an integral vertical cylindrical wall section 28 which is formed with internal screw threads which correspond to the threads on the end of the gun and into which the end of the gun may be screwed.

The nozzle 25 also includes an elongated vertically disposed filling tube 31 which extends down into the interior of the container through

aligned holes or apertures 32, 33 formed respectively in the nozzle bottom wall section 27 and in the cover auxiliary panel 26. The tube is located substantially centrally of the container body and projects at its bottom end into a depressed recess 35 (Fig. 1) formed in the bottom closure 12, this lower end of the tube terminating just short of the bottom of the recess and well below the inner surface of the bottom closure. A flange 36 on the upper end of the tube engages against the nozzle bottom wall section and thus serves as a stop for holding the tube in proper position relative to the bottom recess. If desired this flange may be welded or soldered to the nozzle to insure permanency of location.

The nozzle further includes a valve device which comprises a flat imperforate valve disc or plate 38 which is adapted to seat on top of the flange 36 of the tube 31 and thereby normally to close off the upper end of the tube as shown in Fig. 4. The valve plate is formed with a plurality of outwardly extending flat lugs 39 which are disposed in the plane of the plate.

The ends of these lugs loosely engage the inner surface of an annular vertically elongated step seat 41 formed in the corner of the nozzle 25 at the intersection of its side wall 28 with its bottom wall 27, said seat defining therewithin a cup shaped valve receiving chamber disposed substantially centrally of the cup-shaped nozzle 25. The seat is considerably higher than the thickness of the valve plate as shown in the drawings so that the plate will have a substantial vertical movement without displacement. An annular resilient gasket 42 is disposed on the seat 41 and the inner edge of this gasket slightly overlaps the lugs 39 of the valve plate and thereby confines the plate within the nozzle but still permits it to be vertically lifted as will now be described.

When the gun is screwed into position in the threaded nozzle 25, it will be filled upon drawing the piston D upwardly within the gun cylinder by pulling outwardly on the handle F. This movement of the piston creates a vacuum at the mouth of the nozzle 25 adjacent the valve plate 38. Atmospheric pressure within the head space of the container forces down on the surface of the grease and thereby pushes it up through the tube 31. This flow of grease lifts the valve plate 38 off the top end of the tube and forces it against the resilient gasket where it remains during the filling action. The grease pushes past the raised valve plate through the spaces between the lugs 39 and hence enters the gun.

One stroke of the gun piston fills it to capacity. It may then be unscrewed from the container nozzle and its own independent dispensing nozzle replaced ready for use. As soon as the gun is removed from the nozzle and even during its removal, the valve plate 38 is forced by atmospheric pressure back onto the top of the tube 31 and this recloses the end of the tube. Air is thus prevented from entering the tube and consequently the tube remains full of grease. This is an essential feature of the instant invention and it is this feature that insures that the gun will be filled to capacity when next attached to the nozzle for filling.

During such a gun filling operation atmospheric pressure may be admitted to the interior of the container through a vent hole 44 formed in the container cover 16. Between fillings this hole is normally closed with a screw 45. A fol-

lower plate 46 loosely disposed within the container and resting on the surface of the grease maintains the latter in a level condition and helps force the grease up into the tube 31. This plate surrounds and loosely slides on the tube 31.

When the grease being filled into the gun is of a semi-liquid nature there is sometimes a slight discharge from the end of the gun when the latter is unscrewed from the nozzle 25. Provision is made for draining this discharge back into the container so that it will not interfere with closing of the nozzle. For this purpose there is provided a plurality of spaced vertical holes or bores 51 arranged in a circle in the step seat 41. Cooperating with these holes are a plurality of notches 52 which are formed in the outer edge of the gasket 42.

The gasket is purposely made slightly larger in outside diameter than the inside diameter of the nozzle so that when the gun is detached the gasket will rise up partly on edge in an inclined position as shown in Fig. 4. This permits of communication between the nozzle and the interior of the container by way of the aligned notches 52 and holes 51 in the step seat and thus allows any residual grease to drain back into the container. When the gun is in place on the nozzle it presses the gasket out flat and covers the notches 52 therein so that this communication with the interior of the container is cut off.

When the grease gun is not in place on the container the dispensing nozzle 25 is preferably closed with a removable imperforate screw cap 55 (Fig. 2) which is adapted to be screwed in place within the threaded wall section 28 of the nozzle and to seat against the gasket 42. The gasket thus insures a hermetic seal for the nozzle. This cap is also in place during shipment and storage of the container.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A dispensing container adapted to temporarily receive a piston type lubricating grease gun for filling, which comprises a body member, a cover member secured thereto, a centrally apertured cup shaped nozzle secured to said cover and projecting outwardly therefrom, said nozzle having an upstanding threaded wall section adapted to receive and hold the threaded end of a gun type lubricator for filling from the contents of the container, a filling tube supported by and depending from said nozzle and extending down into the interior of said body member for directing the contents of the container into the gun, a flat disc valve member housed for free-vertical floating movement within said nozzle and seating on the outer end of said filling tube for sealing the latter against the entrance of air thereinto when the gun is detached from the nozzle, and an annular gasket seated within said nozzle above said valve disc and engageable therewith to limit vertical movement of the valve to open position.

2. A dispensing container adapted to temporarily receive a piston type lubricating grease gun for filling, comprising a body member, a cover member secured thereto, a cup shaped nozzle

zle secured to said cover and having a threaded wall section adapted to receive and hold the threaded end of a gun type lubricator for filling from the contents of the container, a floating flat spider shaped valve having projecting lugs in the plane of the valve located in said nozzle for sealing it against the entrance of air thereinto when the gun is detached from the nozzle, a raised seat in said nozzle around said valve, a resilient gasket on said seat and projecting beyond said seat and engageable by said valve lugs for confining said valve within the nozzle while allowing it to move from nozzle sealing position for filling of the gun when the latter is in place on the nozzle.

3. A dispensing container adapted to temporarily receive a piston type lubricating grease gun for filling, which comprises a body member, a cover member secured thereto, a cup shaped nozzle secured to said cover and having an upstanding threaded wall section adapted to receive and hold the threaded end of a gun type lubricator for filling from the contents of the container, said nozzle having a centrally disposed vertically elongated valve receiving chamber and a plurality of vertically disposed holes communicating with the interior of said container for draining back into the container any surplus contents that may be in the nozzle when the gun is detached, a filling tube having its outer end supported by said nozzle and extending down into the interior of said body member for directing the contents of the container into the gun, a freely floating flat valve disc in said valve receiving chamber and seating on said filling tube for sealing it against the entrance of air thereinto when the gun is detached from the nozzle, and an annular gasket seated within said nozzle and projecting inwardly over said valve receiving chamber, said gasket being engageable with said flat valve disc to limit outward movement thereof relative to the outer end of said filling tube.

4. A dispensing container adapted to temporarily receive a piston type lubricating grease

gun for filling, comprising a body member, a cover member secured thereto, a cup shaped nozzle in said cover and having a threaded wall section adapted to receive and hold the threaded end of a gun type lubricator for filling with the contents of the container, said nozzle having a plurality of drain holes communicating with the interior of said container for draining back any surplus contents that may be in the nozzle when the gun is detached, a filling tube carried in said nozzle and extending down into the interior of said body member for directing the contents of the container into the gun, a floating valve member in said nozzle and seating on said filling tube for sealing it against the entrance of air thereinto when the gun is detached from the nozzle, and a resilient gasket in said nozzle and having a plurality of notches in an edge thereof which register with the drain holes in the nozzle when the gun is detached therefrom to permit drainage of the surplus contents in the nozzle and which seal the drain holes when the gun is in place on the nozzle, thereby preventing drawing of air from the interior of the container into the gun.

5. In a closed dispensing container adapted to temporarily receive a piston type lubricating grease gun for filling, the combination of a centrally apertured cup-shaped dispensing nozzle secured to the container closure and to which a gun type lubricator is adapted to be removably secured for filling from the contents of the container, a flat valve disc seated on the bottom of said nozzle over said aperture for restraining the entrance of air into said container through said nozzle when the gun is detached therefrom, said valve disc having free vertical floating movement within said cup shaped nozzle and adapted in elevated position to unseal the container to permit filling of said grease gun, and an annular gasket seated within said nozzle above said valve disc and engageable therewith to limit vertical movement of the valve in open position.

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