Feb. 26, 1929. 1,703,285

O. U. ZERK

LUBRICANT DISPENSING APPARATUS

Filed Jan. 3, 1924

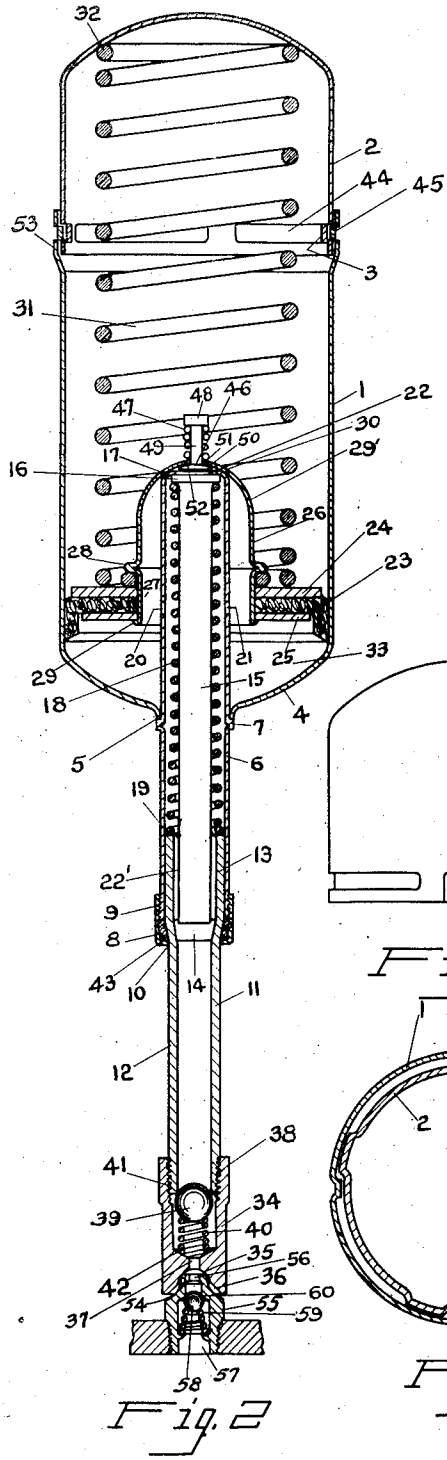


Fig. 2

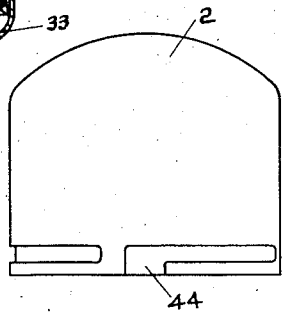


Fig. 3

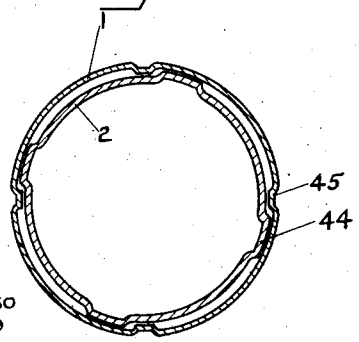


Fig. 4

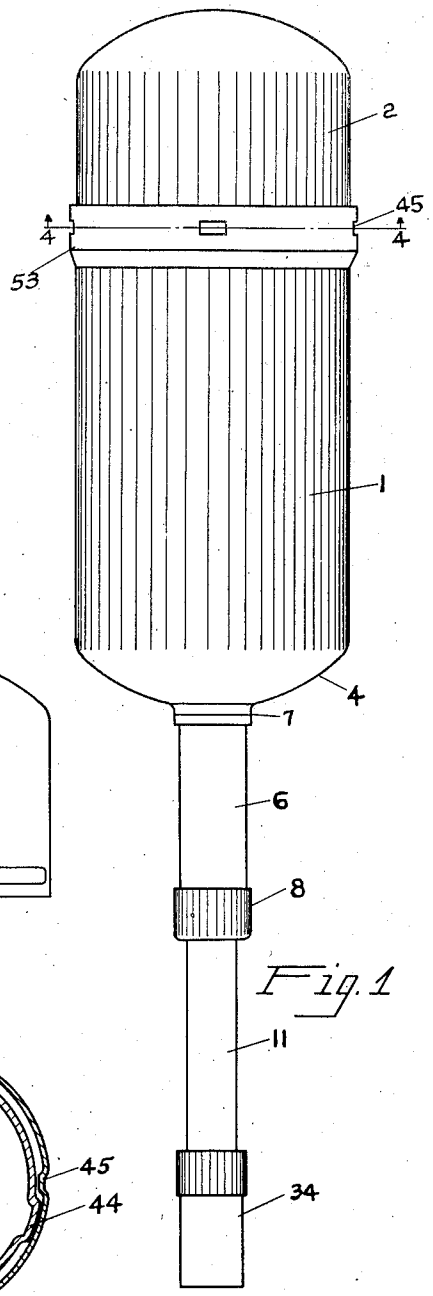


Fig. 1

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UNITED STATES PATENT OFFICE.

OSCAR ULYSSES ZERK, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ALEMITE MANUFACTURING CORPORATION, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

LUBRICANT-DISPENSING APPARATUS.

Application filed January 3, 1924. Serial No. 684,172.

My invention relates to a lubricant dispensing apparatus and particularly to a manually operable apparatus adapted to furnish lubricant under high pressure for the lubrication of machine bearings.

It is an object of my present invention to provide an improved lubricant dispensing apparatus of the type mentioned, which will contain a lubricant reservoir, together with manually operable means for ejecting charges of lubricant at high pressure to lubricant receiving openings, to supply lubricant under high pressure to the machine bearings.

Another object of my invention is to provide in such a lubricant dispensing apparatus, improved means for supplying new charges of lubricant to the high pressure chamber in the apparatus to replenish the supply of lubricant therein, after a charge shall have been ejected therefrom.

Another object of my invention is to provide means for applying pressure to the lubricant in the reservoir, tending to supply the high pressure chamber of the gun with lubricant.

Another object of my invention is to provide a structure which is inexpensive to manufacture and positive and efficient in operation.

The above and other objects of my invention will be apparent from the following description of a specific embodiment of my invention, in which description reference will be had to the accompanying drawings, forming a portion of this specification.

Referring to the drawings, Fig. 1 shows a view in elevation of a lubricant dispensing gun embodying the principles of my invention. Fig. 2 shows a longitudinal axial sectional view of the embodiment of Fig. 1. Fig. 3 shows the rear cap closure for the container of the embodiment of Figures 1 and 2. Fig. 4 shows a sectional view taken on the line 4—4 of Fig. 1 looking toward the rear end of the apparatus.

Referring now to the drawings, I show a cylindrical barrel at 1 carrying at its rear open end a closure cap 2 secured to the barrel 1 at 3 by a bayonet joint. At the other end of the barrel 1 is a head 4 having an opening 5, in which is secured a cylindrical tube in any suitable manner, as by welding the edges of the opening 5 to flanges 7 on the tube. The tube 6 carries at its outer front end, a cap 8, screw threaded at 9 onto the tube 6 and perforated at 10. A reciprocable cylinder 11 is passed through the opening 10, the cylinder barrel portion 12 being of uniform diameter and the rearmost part of the cylinder 11 comprising a portion 13 of increased diameter, engaging snugly with the inner walls of the cylindrical tube 6. The enlarged portion 13 is united with the barrel 12 by an approach portion 14 of gradual taper. The opening 10 is of such a size as to prevent the cylinder 11 being projected entirely out of the tube 6. A plunger rod 15 is disposed within the tube 6, and has an enlarged head 16 pressed against the end wall 17 of the tube 6 by a compression spring 18, said wall having a central opening 22. At its other end the spring 18 bears against the end face 19 of the portion 13 of the cylinder 11. Spring 18 normally holds the parts in the separated position of Figure 1.

Openings 20 and 21, in addition to the perforation 22, permit the inflow of lubricant from the reservoir of barrel 1 into the tube 6 from whence it will pass through the annular passageway 22′ into the discharge cylinders 12.

I provide a low pressure piston comprising a cup leather 23 clamped between metal washers 24 and 25. A central cup is beaded at 28 and 29 to retain the parts and the small end coil of a spring 31 in assembled relation. Forward movement of the piston is limited by engagement of the dome 29′ with the end of tube 6. The other end turn 32 of the spring 31 abuts the end wall of the cap 2.

Barrel 11 ends in a nozzle 34 having a flaring guide portion 36 and a concave face 35 perforated at 37. The nozzle is threaded on the barrel 11 and houses a ball 39 pressed against a seat 41 by a spring 42.

A cork washer 43 inside cap 8 is useful in maintaining a tight seal when the device is not in use, especially if the lubricant employed flows easily.

The operation is as follows:

The cap 2 is removed from the barrel 1. A valve 46 having a stem 49 and a foot 48 engaged by spring 47, lets in air through opening 51 and over its seat 50 to facilitate

removal. The valve may, if desired, have a leather seat or facing 51.

If desired as shown, a leather washer shown at 52 may be interposed between the body of the valve and the seat, so as to make a tight lubricant seal except when the piston is being withdrawn for filling. The barrel is now filled with lubricant. With viscous lubricant pressure may be necessary to fill tube 6 and barrel 12, expelling air past valve 39 in so doing. With free flowing oil pressure may be unnecessary.

The piston is set in the flared end 53 of the barrel and cap 2 pushed down and turned to fasten it in place. This compresses spring 31, which will maintain a pressure on the lubricant in the barrel.

Lubricant is ejected by pushing the contact face 35 against the contact face 54 of a nipple 55. The nipple has a passage 56, controlled by a valve 58 held by spring 59, and opening at 57 to the parts to be lubricated. After plunger 15 enters barrel 12 the lubricant trapped therein will be ejected under sufficient pressure to force it through the valves and into the bearing even if the pressure required is very high.

Withdrawal of the compressor permits spring 18 to return the parts to the position of Figure 1. When the end of the plunger 15 opens the barrel 12 a new charge of lubricant will enter the barrel under the combined influence of the vacuum in the barrel and the pressure of the follower. Spring 31 may be dispensed with in certain instances and the atmospheric pressure back of the follower, due to air entering at the bayonet joint, will replenish cylinder 12. Where a more positive feed is desired, as in using very viscous lubricant, the spring is employed, in which case leakage of valve 39, or even the entire absence of such a valve, will not prevent successful operation.

Without further elaboration, the foregoing will so fully explain the gist of my invention, that others, may by applying current knowledge, readily adapt the same for use under various conditions of service, without eliminating certain features which may properly be said to constitute the essential items of novelty involved, which items are intended to be defined and secured to me by the following claims.

I claim:

1. A lubricant dispensing apparatus comprising a container, an outlet conduit telescopically secured with said container, a nozzle at the discharge end of the conduit, a spring for normally retaining said conduit in extended position, a plunger adapted to be telescoped into said conduit, said plunger being movable within said conduit for ejecting lubricant under high pressure therefrom and through the nozzle when said container is pressed toward an element to be lubricated while said nozzle is in operative contact therewith, a piston slidable in said container, and a spring for causing said piston to create pressure against the lubricant in said container, said outlet conduit being filled automatically when said conduit is returned to normal extended position.

2. A lubricant dispensing apparatus comprising a container, a rigid outlet conduit telescopically secured with said container, the end of said conduit being engageable with an element to be lubricated, a plunger adapted to be telescoped into said conduit, said plunger being movable within said conduit for ejecting lubricant under high pressure therefrom through the end of said conduit when said container is pressed toward an element to be lubricated with the end thereof in operative contact therewith, a freely slidable piston in said container, and a spring for exerting pressure against said piston, said conduit being automatically filled with lubricant when said conduit is extended after ejecting a charge of lubricant from said conduit.

3. A lubricant compressor comprising a barrel, a tubular housing rigid with said barrel at the discharge end, a sleeve telescopically mounted in said housing, means for limiting outward movement of said sleeve, a plunger in said housing to enter said sleeve and expel the contents thereof, and a spring in said housing pushing the sleeve out and the plunger back, the rear end of said housing limiting the rearward displacement of said plunger.

4. A lubricant compressor comprising a barrel, a tubular housing rigid with said barrel at the discharge end, a sleeve telescopically mounted in said housing, means for limiting outward movement of said sleeve, a plunger in said housing to enter said sleeve and expel the contents thereof, a spring in said housing pushing the sleeve out and the plunger back, and a fixed abutment carried by said barrel and housing structure for limiting the rearward movement of said plunger.

5. Lubricating means comprising a barrel, an opening at one end of said barrel, a tube extending both within and without said barrel, said tube having openings receiving lubricant from said barrel and discharge means at the end projecting out of said barrel, a low pressure piston in said barrel, said low pressure piston having a central dome in alignment with said tube to permit said piston to move to the end of said barrel.

In testimony whereof I hereunto affix my signature this 29th day of December, 1923.

OSCAR ULYSSES ZERK