

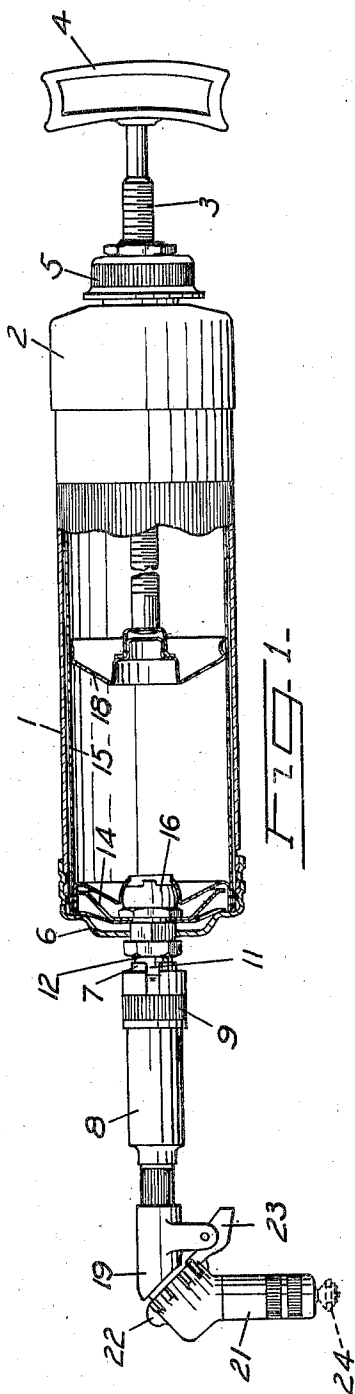
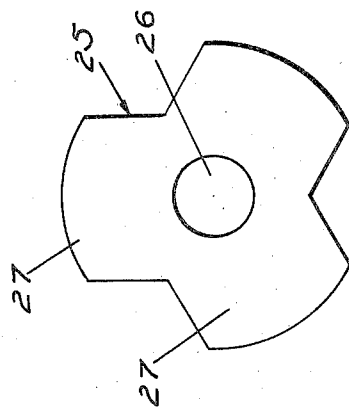
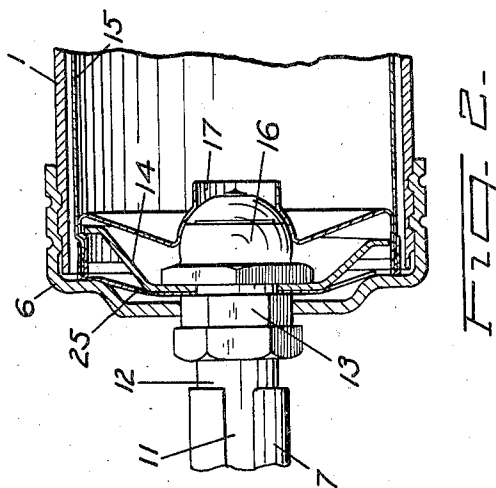
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H. R. TEAR

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LUBRICATING DEVICE

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INVENTOR
HARRY R. TEAR
BY
McConkey & Booth
ATTORNEYS

UNITED STATES PATENT OFFICE

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LUBRICATING DEVICE

Harry R. Tear, Evanston, Ill., assignor to The
Lubrication Corporation, Chicago, Ill., a cor-
poration of Delaware

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5 Claims. (Cl. 221-47.4)

This invention relates to lubricating devices and more particularly to lubricant dispensers for use with interchangeable lubricant cartridges.

In my prior application Serial No. 743,123, now Patent No. 2,049,182, there is disclosed and claimed a lubricant dispenser in which a high pressure pump is loosely carried by a casing and is adapted to be rigidly connected to an interchangeable lubricant cartridge in the casing. The pump carries a connector plate for securing it to the cartridge and has an inlet stud for sealing engagement around the cartridge outlet and the casing is provided with a feed screw for forcing a piston through the cartridge to force the contents thereof into the pump. Due to the loose connection between the pump and the casing, the cartridge and the pump may move relative to the casing when the feed screw is operated until the forward edge of the cartridge seats on the end of the casing. In this way the feed screw thrust is distributed uniformly over the forward edge of the cartridge side wall and the cartridge wall around the outlet opening which engages the pump inlet stud is relieved of the feed screw thrust.

This arrangement is highly advantageous in a dispenser in which the pump is operated by a straight thrust where no bending movement is created on the connector plate or the cartridge. However, when angle adapters or nozzles are used so that the point of contact of the nozzle and fitting is displaced from the axis of the dispenser, a bending moment is created tending to bend the connector plate or cartridge end wall and it is one of the objects of the present invention to overcome this difficulty.

Another object of the invention is to provide a lubricating device for use with interchangeable lubricant cartridges which includes dispensing means loosely carried by a frame member with resilient means between the frame member and dispensing means yieldingly to hold them in alignment.

Another object is to provide a lubricating device including a casing to receive an interchangeable lubricant cartridge and loosely carrying a high pressure pump which is adapted to be rigidly connected to the cartridge and in which bending moments on the pump are yieldingly transmitted to the casing.

Other objects and advantages and novel features of the invention will be apparent from the following description when read in connection with the accompanying drawing, in which:

Figure 1 is a central section with parts in ele-

vation of a lubricating device embodying the invention;

Figure 2 is an enlarged partial section of the device of Figure 1; and

Figure 3 is a detail view.

The lubricating device illustrated in the drawing includes a cylindrical barrel or casing 1 having a permanent closure 2 at one end and a feed screw 3 extending through the end closure 2. The feed screw is provided with a handle 4, by which it may be operated and is connected to the casing by means of a quick release device 5 which may be of the type more particularly disclosed and claimed in my copending application Serial No. 753,663 now Patent No. 2,061,743. By means of the device 5, the feed screw may be connected to the casing for screw threaded movement axially therein or may be released for free axial movement.

The opposite end of the casing is closed by a removable cap 6 which loosely carries a pump body 7. A sleeve 8 is telescopically mounted on the body 7 and is adapted to carry any suitable type of discharge nozzle for sealing connection with a lubricant receiving fitting. Preferably a collar 9 is rotatably mounted on the part 8 and has a tongue engaging a groove 11 in the body 7, the tongue being adapted to move into a peripheral groove 12 in the body 7 to lock the pump in its discharge position.

As best seen in Figure 2, the pump body 7 extends loosely through an opening in the cap 6 and has a flattened portion at 13 to prevent relative rotation. The pump body 7 rigidly carries a connector plate 14 inside of the cap 6, the connector plate being formed with suitable slots and cam surfaces to provide a bayonet connection with the end of an interchangeable lubricant cartridge 15 as more particularly described and claimed in the patent to Dodge No. 1,987,002. An inlet stud 16 is formed on the end of the body 7 and is adapted for sealing engagement with the end wall of the cartridge 15 around an outlet opening 17 therein.

The opposite end of the cartridge is closed by a slidable piston 18 which is adapted to be engaged by the feed screw 3 to force the piston through the cartridge and urge the contents thereof through the inlet stud 16 into the pump. After the pump is filled with lubricant it may be operated by exerting a thrust on the handle 4 or casing 1 in the direction of the nozzle to telescope the pump parts 7 and 8 to eject a charge of lubricant from the pump under high pressure.

It has been found that a lubricating device con-

structed as so far described will operate satisfactorily where the nozzle connected to the pump is substantially in alignment therewith so that no appreciable bending moment is created. However, when the device is used with an angle nozzle or adapter whose point of connection to the fitting is off-set relative to the axis of the pump and cartridge, a bending moment is created on the connector plate 14 and the cartridge end wall which might under some conditions, cause the connector plate 14 to be bent or otherwise damage the cartridge end wall.

As shown in Figure 1 the pump part 8 is connected to an angle nozzle of the type more particularly disclosed and claimed in my copending application Serial No. 46,640 which includes a conduit portion 19 and a nozzle or coupler portion 21. The conduit portion 19 is adapted to be rigidly connected to the pump sleeve 8 and the portions 19 and 21 are connected by a swivel joint whose axis lies at an angle to each of them. The portions 19 and 21 may be locked in any one of several angular positions by means of a series of ratchet teeth 22 and a pivoted pawl 23. As shown, the parts are in substantially a right angle position so that the point of engagement of the nozzle part 21 with a lubricant receiving fitting indicated at 24 is off-set a substantial distance from the axis of the pump and the cartridge. It will be appreciated that if a thrust is now exerted on the handle 4 or casing 1 in the direction of the fitting, a substantial bending moment will be created throughout the rigid pump structure and transmitted to the connector plate 14 and the end of the cartridge.

In order to prevent damage to the connector plate or cartridge due to this bending moment, there is provided, according to the present invention, a spring disc 25 carried by the pump part 7 and arranged between the cap 6 and the connector plate 14. As seen in Figure 3, the disc 25 has a central opening 26 to receive the pump part 7 and a plurality of projecting portions 27, shown as three in number, forming resilient leaf springs whose ends are adapted to engage the cap 6. In Figure 2 the parts are shown in the position they will occupy when a thrust is exerted on the cartridge through the feed screw 3 with the spring disc 25 slightly bowed and the forward edge of the cartridge 15 resting on the ends of the portions 27. It will be apparent that in this position the spring disc exerts a resilient force tending to hold the pump in alinement with the cap 6 and casing 1 so that it will yieldingly resist any bending moment between the pump and the casing. Thus the disc serves to eliminate or at least to reduce any tendency of such bending moment to damage the connector plate 14 or the cartridge by eliminating or decreasing the bending strains which must be absorbed thereby.

It will be apparent that resilient means other than a spring disc of the type shown might be employed between the pump and the casing and that various other changes might be made without departing from the scope of the invention.

It is accordingly not intended to be limited to the exact form shown or otherwise than by the terms of the appended claims.

I claim:

1. A lubricating device comprising, lubricant dispensing means, an interchangeable lubricant cartridge having a piston, means for detachably securing said cartridge to the dispensing means, a member connected to said dispensing means for movement relative thereto, means carried by said member for applying thrust to the cartridge piston in the direction of the dispensing means, and resilient means engaging said member and the dispensing means yieldingly to hold them in alinement.

2. A lubricating device comprising, lubricant dispensing means, an interchangeable lubricant cartridge having a piston, means for detachably securing said cartridge to the dispensing means, a member connected to said dispensing means for movement relative thereto, means carried by said member for applying thrust to the cartridge piston in the direction of the dispensing means, and a spring disc engaging said member and the dispensing means yieldingly to hold them in alinement.

3. A lubricating device comprising, lubricant dispensing means, an interchangeable lubricant cartridge having a piston, means for detachably securing said cartridge to the dispensing means, a casing surrounding said cartridge and movably connected to said dispensing means, means carried by the casing for applying thrust to the cartridge piston in the direction of the dispensing means, and resilient means engaging the dispensing means and the casing for yieldingly holding them in alinement.

4. A lubricating device comprising, a casing, a high pressure pump unit extending loosely through one end of the casing, a connector plate secured to said pump unit and lying within the casing, a lubricant cartridge in the casing having means for detachably securing it to said connector plate, means carried by the other end of the casing for placing the contents of said cartridge under pressure and for exerting a thrust on the cartridge toward the first named end of the casing, and resilient means between the connector plate and the casing yieldingly holding the pump unit and the casing in alinement.

5. A lubricating device comprising, a casing, a high pressure pump unit extending loosely through one end of the casing, a connector plate secured to said pump unit and lying within the casing, a lubricant cartridge in the casing having means for detachably securing it to said connector plate, means carried by the other end of the casing for placing the contents of said cartridge under pressure and for exerting a thrust on the cartridge toward the first named end of the casing, and a relatively flat spring disc between the connector plate and the first named end of the casing yieldingly holding the pump unit and the casing in alinement.

HARRY R. TEAR.