

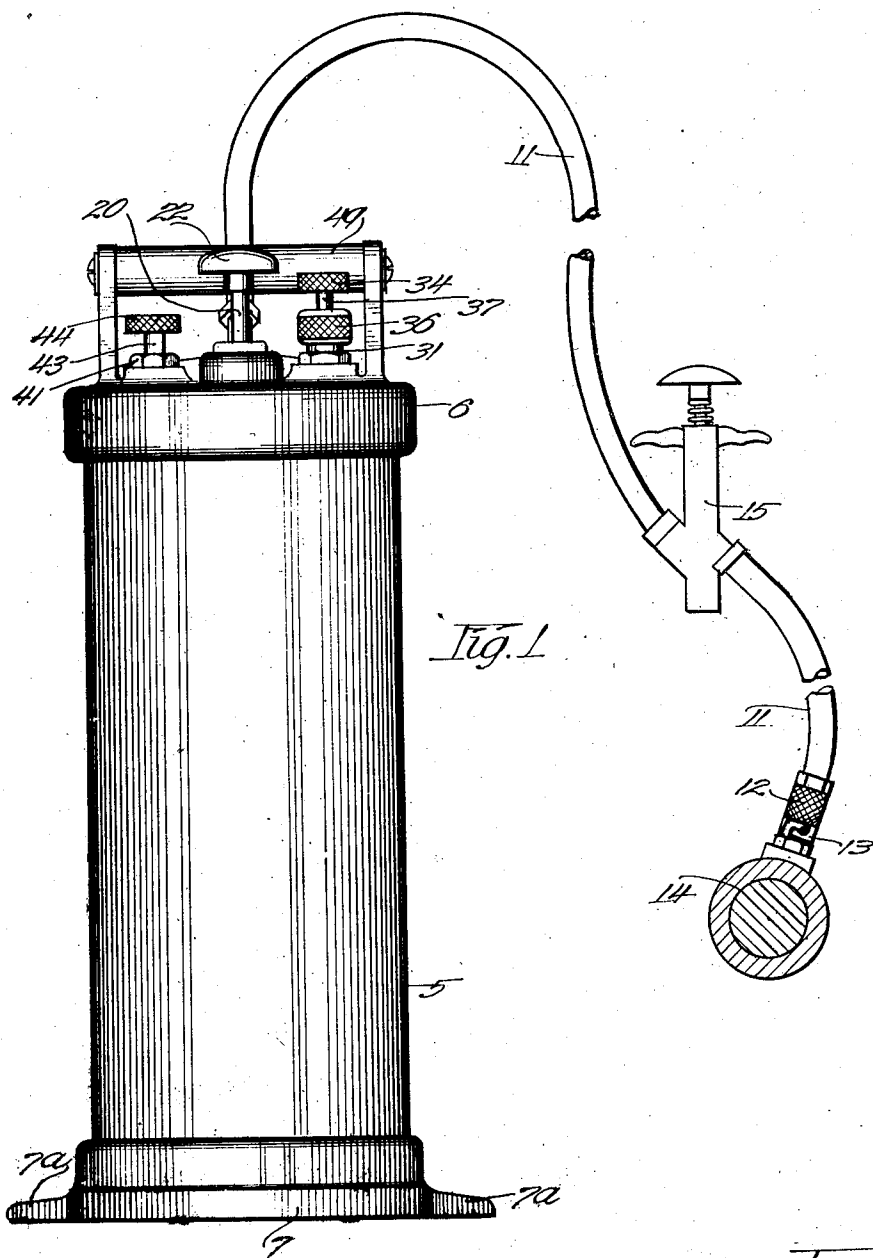
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1,651,256

E. W. DAVIS

LUBRICANT DISPENSING APPARATUS

Original Filed Feb. 16, 1921 2 Sheets-Sheet 1



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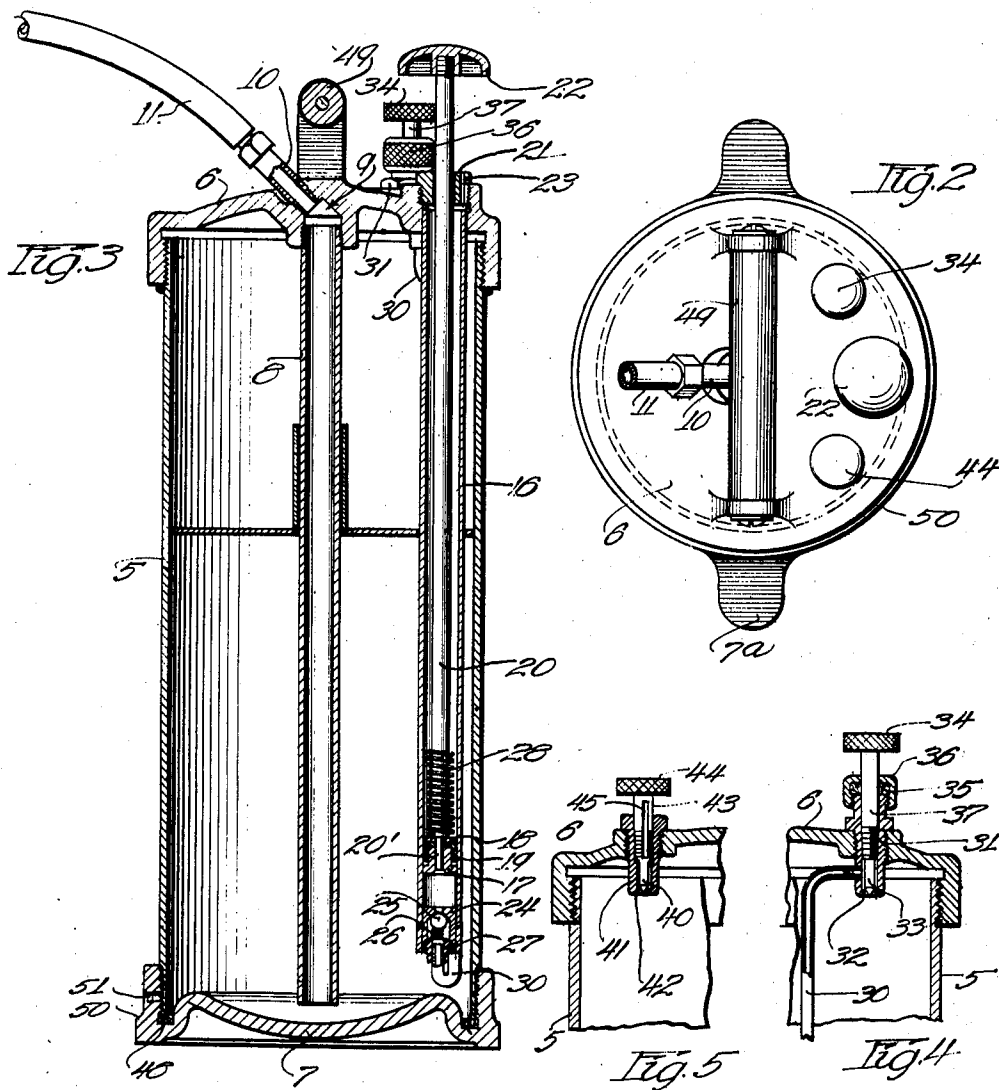
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LUBRICANT DISPENSING APPARATUS

Original Filed Feb. 16, 1921 2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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LUBRICANT-DISPENSING APPARATUS.

Application filed February 16, 1921, Serial No. 445,355. Renewed April 29, 1927.

My invention relates to improvements in lubricant dispensing apparatus and is particularly concerned with the provision of a novel compressor for supplying lubricant to the bearings of machinery and especially to the bearings of automobiles, trucks, tractors and other vehicles.

The objects of my invention are:—

First to provide a lubricant dispenser comprising a container for holding the lubricant, the container being of novel construction for expediting the filling thereof.

Second; to provide a container for a lubricant dispenser wherein compressed air is used for forcing the lubricant from the container, the means for supplying the compressed air being an integral part of the dispenser device.

Third; to provide novel means for preventing the escape of air from the container.

Fourth; to provide means for indicating to the operator the presence of air under pressure in the container if he should attempt to remove the closure before exhausting the air from the container.

Other objects will appear as this description progresses, reference being had to the accompanying drawings, in which

Figure 1 is a side elevation of my improved lubricant dispensing apparatus, the coupling of which is illustrated as being connected to a nipple for supplying lubricant to a bearing, the said bearing being shown in cross section.

Figure 2 is a plan view of the container.

Figure 3 is a vertical central section through the container of my apparatus showing certain details of construction of the container and the air compressor.

Figure 4 is a sectional view showing the details of construction of the valve for controlling the supply of air to the container, and

Figure 5 is a similar view illustrating the valve for controlling the discharge of air from the container.

Throughout the several views, similar reference characters will be used for referring to similar parts.

My improved dispensing apparatus comprises a container formed of a cylindrical sheet metal shell 5, the metal of which is of sufficient thickness to withstand the pressures to which it is desired to subject the lubricant. One end of the shell 5 is closed by the closure

6 which is illustrated as being threaded upon the end of the shell. I prefer to make this connection a permanent one by sweating the joint with solder. The opposite end of the shell is closed by the closure or cap 7 to which reference will be made later for a detailed description.

A lubricant discharge conduit 8 depends from the closure 6 and opens adjacent the bottom closure 7; the upper end of the discharge conduit 8 is connected by the bore 9 in the closure 6 and the short pipe section 10 with the inner end of the flexible metallic conduit 11.

The free end of the flexible conduit 11 is provided with a coupling member 12 which is adapted to be detachably secured to the nipple 13 which supplies lubricant to the bearing 14. Intermediate the ends of the conduit 11, is a device indicated as a whole by the reference character 15 which I preferably construct in accordance with the disclosure in my application, Serial No. 420,157 filed October 28, 1920, and by means of which the lubricant may be permitted to flow to the bearing 14 under the pressure impressed thereon by the air in the container 5 or by means of which the pressure in that portion of the conduit extending between it and the nipple 13 can be increased as desired within certain limits. In other words, the device 15 can act as a pressure booster. Where, however, the pressure exerted upon the lubricant in the container 5 is sufficient to force the lubricant into the bearings to be lubricated, I can construct the device 15 in the manner illustrated in my co-pending application Serial No. 366,625 filed March 17, 1920, in which event the device 15 will merely act as a valve to control the flow of lubricant to the bearing and to relieve the pressure on the lubricant in that portion of the conduit extending between it and the coupling member when it is desired to detach the coupling member from the nipple 13. The construction of the coupling member 12 is sufficiently described in my co-pending applications above referred to. It will, of course, be understood that I can dispense with the device 15 and that the construction of the coupling member 12 can be modified, as desired.

For exerting pressure upon the contents of the container 5, I provide an air pump which comprises the barrel 16 in which is

reciprocally mounted a plunger comprising the member 17, the follower plate 18 and the cup leather 19, all of which are secured to the inner end of the rod 20 by the reduced end 20' thereof which extends through aligned central openings in the three members 17, 18 and 19 and has its outer end riveted over. The rod 20 extends through a suitable bushing 21 in the outer end of the barrel 16 and is provided with a handle 22 by means of which it can be reciprocated. An opening 23 formed in the bushing 21 permits the free escape of air from the back side of the plunger.

An annular member 24 is secured in the inner end of the barrel 16 and provides a seat for the valve 25 which is yieldingly held in place by a spring 26 confined between the valve and the union 27 which is threaded into the open end of the member 24. A spring 28 surrounding the rod 20 cushions the upward stroke of the plunger.

For conducting the compressed air from the lower end of the pump to the upper end of the container, I provide the pipe or conduit 30, one end of which is secured to the union 27 and the other end of which discharges into a sleeve 31 which is threaded into and extends through the closure 6 (see Figure 4). The inner end of the sleeve 31 is flanged inwardly as shown at 32 to form a seat for co-acting with the valve 33. The valve 33 is threaded into the sleeve 31 and its outer end is provided with a knurled head 34 by means of which it can be operated to establish communication between the conduit 30 and the interior of the container 5. A suitable gasket 35 and follower 36 provide means for preventing the escape of air along the valve stem 37, when the air pump is being operated to supply compressed air to the container. It will be noted from the above description that when the valve 33 is closed on its seat 32, there is no chance for air to escape from the interior of the container 5 along the valve stem 37.

For exhausting the air from the interior of the container, preparatory to removing the closure 7, I provide an exhaust valve 40 (see Figure 5) which operates in the sleeve 41. The sleeve 41 is threaded into and through the closure 6 in the same manner as sleeve 31 and its inner end is flanged inwardly as shown at 42 to provide a seat for the valve 40. The outer end of the valve stem 43 is provided with a knurled head 44 by means of which it can be rotated to bring the valve into either its opened or closed position. A groove 45 cut in one side of the valve stem provides a passageway for the escape of air from the container when the valve 40 is in its opened position.

As shown in Figure 3, the closure 7 is secured to the lower end of the shell 5 by means of a screw-threaded connection which

is sealed by a gasket 48 of fibre or any other suitable material. This closure is provided with two outwardly extending lugs 7^a which are to be engaged by the feet of the operator when he desires to remove the closure for the purpose of refilling the container 5. The shell can be rotated by means of the handle 49 which is secured to the closure.

To avoid the possibility of the operator attempting to remove the closure 7 while there is still air pressure in the container 5, I provide the upstanding flange 50 of the closure 7 with a vent opening 51 through which any lubricant or air remaining in the tank will be forced by the pressure of the air before the shell 5 is completely unscrewed from the closure 7. The air escaping through the opening 45 will make sufficient noise to attract the attention of the operator and warn him of the fact that there is still air under pressure in the container.

From an inspection of Figures 1 and 3, it will be noted that when the rod 20 is in its extreme innermost position, the top of the handle 22 is on a level with the top of the handle 49. This means that after the closure 7 has been removed, the container can be inverted and the two handles 22 and 49 will act as supports while the container is being filled with lubricant.

After the container is filled with lubricant, the closure 7 is replaced, the container is placed in its upright position and the air pump actuated to force compressed air into the upper end of the container. When sufficient pressure has been created in the container, the valve 33 is closed and the apparatus is then ready for use. All that is necessary for the operator to do is to successively connect the coupling member 12 with the nipples 13 and manipulate the device 15 to cause the lubricant to flow into the bearings. It is necessary from time to time as the contents of the container 5 are expelled, to operate the jump 16 to increase the pressure of the air in the container. When the lubricant has been exhausted from the container, the air pressure is first relieved by the means of valve 40, the closure 7 is then removed, the container inverted and filled as described above.

While I have described the details of construction of the preferred embodiment of my invention, it is to be understood that my invention is not limited to these details but is capable of other adaptations and modifications within the scope of the appended claims.

Having thus described my invention, what I claim is:—

1. A compressed air lubricant dispenser comprising a cylindrical shell having a bottom closure, said closure being detachably secured to said shell by a screw threaded connection and having a flange overlapping

the wall of said shell, said flange having an opening therethrough positioned to be uncovered while said shell is being detached from said closure, and means permitting escape of air from said shell.

2. A compressed air lubricant dispenser comprising a cylindrical shell having a bottom closure, said closure being detachably secured to said shell, the shell and said closure having overlapping portions, one of said overlapping portions being provided with an opening communicating with the interior of said shell and positioned to be opened while said shell is being detached from said closure.

3. In a lubricating apparatus of the class described, a lubricant compressor comprising a lubricant containing member, a piston for exerting pressure upon the lubricant therein, a cap member threaded to an end of said containing member, one of said members being provided with a small hole at the

juncture adapted to be normally covered by the other member but to be cleared for venting the compressor when the cap member is partly unscrewed.

4. A lubricant dispenser of the class described comprising a lubricant reservoir having a threaded cylindrical part, a piston in said reservoir for discharging the lubricant therefrom, means for applying air pressure to said piston, and a member providing a cylindrical portion for surrounding and threadedly engaging the cylindrical part of said reservoir, said portion having an opening therethrough normally closed by said part of the reservoir but adapted to communicate with the interior thereof upon the partial unscrewing of said part and said portion.

In witness whereof, I hereunto subscribe my name this 4th day of February, 1921.

ERNEST W. DAVIS.