Nov. 13, 1951 H. J. KOEPKE 2,574,744

LUBRICATOR

Filed March 31, 1950

Fig. 1.

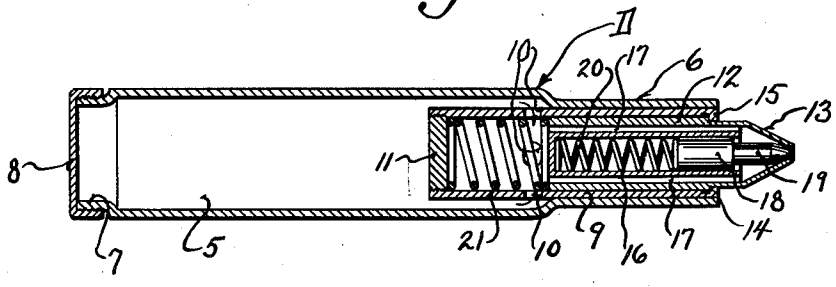


Fig. 2.

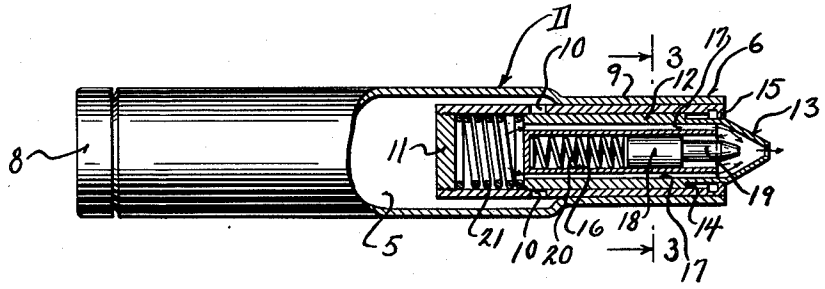


Fig. 4.

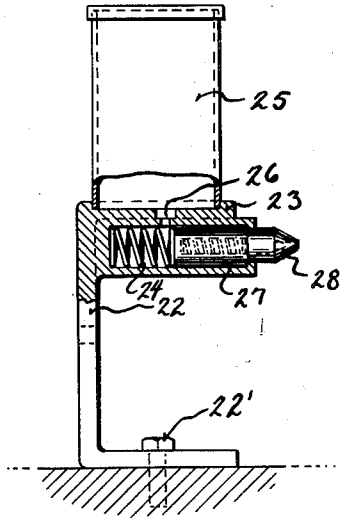
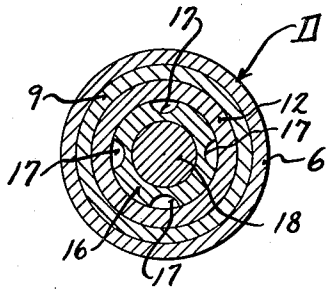


Fig. 3.



INVENTOR
HENRY J. KOEPKE

BY Young & Wright

ATTORNEYS

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LUBRICATOR

Henry J. Koepke, Waukesha, Wis.

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2 Claims. (Cl. 222—531)

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This invention appertains to lubrication, and more particularly to a novel dispenser for effectively oiling the centers of lathes and the like.

One of the primary objects of my invention is to provide means whereby a desired quantity of lubricant can be quickly and forcibly delivered to a selected point by the mere pressure of the dispenser against the work (or vice versa) to be lubricated.

Another salient object of my invention is to provide (in one form) a novel hand lubricant dispenser embodying a handle forming a container for the lubricant having a cylinder shell at one end communicating with the interior of the container, a combined pressure plunger and delivery nozzle, and a normally closed valve for the nozzle movable to an open position upon the inward pushing of the delivery nozzle.

A further important object of my invention is to provide a small, compact lubricant dispenser of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed and illustrated in the accompanying drawing, in which drawing,

Figure 1 is a longitudinal sectional view through one preferred form of my dispenser.

Figure 2 is a similar view, but showing the dispensing nozzle in its depressed position and the valve open for permitting the flow of the lubricant to the desired point.

Figure 3 is an enlarged detail transverse sectional view through the dispenser taken on the line 3—3 of Figure 2, looking in the direction of the arrows.

Figure 4 is a side elevational view illustrating another form of my dispenser, parts of the figure being shown broken away and in section to illustrate structural detail.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter D generally indicates my novel dispenser for a lubricating oil. As illustrated, in Figures 1, 2 and 3, the dispenser D comprises an elongated hollow handle 5 forming a reservoir or container for the desired lubricant. The forward end of the handle 5 is elongated and reduced in diameter to provide a barrel 6. The

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handle or container 5 can be filled with the selected lubricant in any desired manner, but as illustrated, the rear end of the handle 5 is provided with a reduced neck 7, on which is threaded a removable closure cap 8.

Received in the barrel 6 and rigidly fastened thereto, in any preferred way, is the cylinder shell 9. This cylinder 9 extends into the handle 5 a short distance and is provided with one or more inlet ports 10, which communicate with the interior of the handle. The inner end of the cylinder 9 is closed in any desired way, such as by a threaded plug 11. Slidably mounted within the cylinder 9 for reciprocatory movement is a plunger sleeve 12 having formed on its outer end the contracted dispensing nozzle 13. The outer surface of the plunger sleeve 12 is provided with an annular stop shoulder 14, and the outer end of the cylinder shell 9 is flanged inwardly to provide an annular stop wall 15, and the engagement of the shoulder 14 with the stop wall 15 limits the outward movement of the plunger sleeve 12 and the nozzle 13. Fitted within the plunger sleeve 12 for movement therewith, is the axially disposed guide bushing 16. The inner end of this bushing is closed and the bushing in effect forms a direct part of the plunger sleeve and cooperates therewith to form a piston plunger, as will later appear. The outer surface of the bushing 16 is provided with longitudinal channels or grooves 17, which extend from one end thereof to the other and these channels or grooves 17 constitute passageways for the lubricant, as will also hereinafter more fully appear. Slidably mounted within the bushing 16 is the cylindrical valve body 18 and this body 18 carries the forwardly projecting needle valve 19 which normally sits in and closes the nozzle 13, as best shown in Figure 1. A light expansion coil spring 20 is fitted within the bushing 16 and normally urges the needle valve 19 on its seat to close the nozzle. A relatively heavy expansion coil spring 21 is disposed within the cylinder shell 9, and this spring normally bears against the plunger shell 12 and normally urges the shoulder 14 against the flanged stop wall 15.

Considering that the hollow handle or container 5, is filled with the lubricant, it can be seen, see Figure 1, that the ports 10 are open, and consequently the inner end of the cylinder 9 will be filled with oil. When it is desired to apply the lubricant at a selected point, it is merely necessary to grasp the handle 5 in the hand, and press the nozzle 13 against the work,

so that the nozzle 13 and the plunger sleeve 12 will be forced rearwardly against the spring 21. Inward movement of the cylinder sleeve 12 and the bushing 16 will close ports 10 and the oil will be trapped in the inner end of the cylinder and consequently this trapped oil will be delivered with considerable pressure through the channels 17 to the nozzle 13. The oil under pressure bearing against the cylindrical valve body 18 will overcome the tension of the spring 20 and the valve body and the needle valve 19 will be moved inwardly and the valve will leave its seat (see Figure 2). The oil will now be forced through the restricted nozzle outlet onto the work. Upon release of pressure on the nozzle 13, the spring 21 will return the nozzle, the plunger sleeve 12, and the bushing 16 to their normal position, and this forward movement will permit the inflow of oil into the cylinder through ports 10 after the ports are uncovered. Due to the small, compact nature of my dispenser, the same is particularly adaptable for lubricating hard-to-reach places, such as the center points of lathes and the like.

While the hand dispenser shown in Figures 1, 2 and 3, is preferred, obviously, the principles of my invention can be readily incorporated in a bench or like lubricator, see Figure 4. In this form of my invention, I provide a bracket 22, which can be rigidly secured to a bench or other desired place, by the use of bolts or like fastening element 22'. The upper end of the bracket 22 is provided with a forwardly extending hollow arm 23 which constitutes a cylinder 24. The arm 23 supports a reservoir 25 and the reservoir has communication with the cylinder 24 through a port 26. The cylinder 24 corresponds to the cylinder shell 9 illustrated in Figures 1 to 3, and the port 26 corresponds to the ports 10. The cylinder 24 has slidably mounted therein a plunger sleeve 27, which corresponds to the plunger sleeve 12 and this sleeve carries the companion parts, as is clearly illustrated in Figures 1, 2 and 3.

In this form of my invention, the work is pressed against a nozzle 28 carried by the cylinder sleeve 27 in lieu of the pressing of the nozzle against the work.

Various changes in details can be made without departing from the spirit or the scope of this invention but what I claim as new is:

1. A dispenser for a lubricant comprising a container for the lubricant, a cylinder closed at its inner end having a port communicating with the container, a plunger sleeve mounted for reciprocatory movement within the cylinder terminating in a nozzle having a restricted outlet extending beyond the cylinder, spring means normally urging the plunger sleeve and nozzle outwardly beyond the port, a bushing mounted for movement with the plunger sleeve having a closed inner end and provided with longitudinal channels connecting the inner end of the cylinder with the nozzle, and a valve including a cylindrical body slidably mounted within the bushing and a needle point for the nozzle, and spring means fitted in the bushing normally urging the valve outwardly with the needle point closing the nozzle.

2. A compact hand dispenser for a lubricant comprising an elongated hollow handle constituting a container for the lubricant having a restricted barrel on its inner end, a cylinder shell rigidly fitted in said barrel and extending into the hollow handle and having an inlet port communicating with the container, a plunger sleeve mounted for reciprocatory movement in the cylinder shell, a bushing rigidly secured to the sleeve having an inner closed end and provided with longitudinally extending passageways connecting the inner end of the cylinder with the outer end of the plunger sleeve, a nozzle having a restricted outlet carried by said plunger sleeve and normally projecting beyond the barrel and cylinder, spring means normally urging the sleeve and bushing to a forward position, means for limiting the outward movement of the plunger sleeve and nozzle, said plunger sleeve closing the port upon inward movement thereof, a valve including a cylindrical body slidably mounted in said bushing and a forwardly projecting needle for closing the nozzle, and a spring housed within said bushing normally urging the valve to a forward closed position.

HENRY J. KOEPKE.

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