Nov. 13, 1923. 1,474,083

C. H. LEONARD

DISPENSING DEVICE

Filed April 10, 1922

Fig. 1

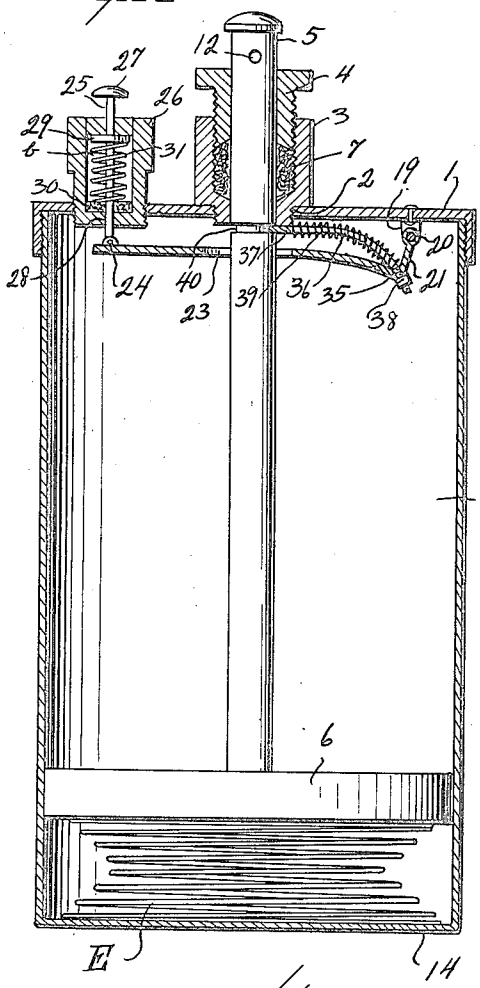


Fig. 2

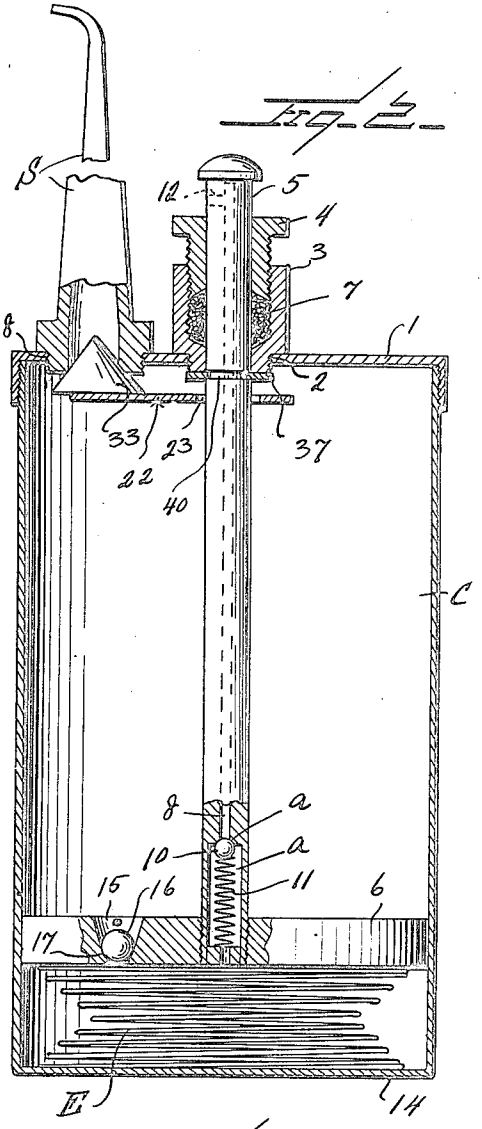


Fig. 3

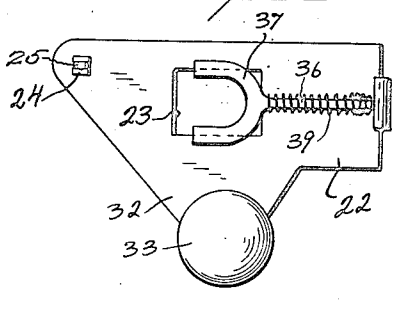
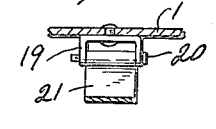


Fig. 4



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UNITED STATES PATENT OFFICE.

CARL H. LEONARD, OF PENDER, NEBRASKA.

DISPENSING DEVICE.

Application filed April 10, 1922. Serial No. 551,165.

To all whom it may concern:

Be it known that I, CARL H. LEONARD, a citizen of the United States, residing at Pender, in the county of Thurston and State of Nebraska, have invented certain new and useful Improvements in Dispensing Devices, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in dispensing devices and has relation more particularly to a device of this general character especially designed and adapted for use in connection with liquid, such as lubricating oil, and wherein a force feed is provided to effect the ejection or discharge of such liquid, and it is an object of the invention to provide a device of this type with novel and improved means whereby the discharge of the liquid may be effectively controlled.

Another object of the invention is to provide a novel and improved device of this general character including a discharge opening, together with a piston operating automatically to eject the liquid and wherein means are employed under a common control for holding the piston against movement and for closing the flow through the discharge opening.

An additional object of the invention is to provide a novel and improved device of this general character comprising a container having a discharge opening, together with a valve supported within the container for normally closing the discharge opening and wherein means are provided extending exteriorly of the container for moving the valve into open position.

It is also an object of the invention to provide a novel and improved device of this general character including a container provided with a discharge opening, together with a piston automatically moving in one direction to effect a discharge through said opening and wherein means are arranged within the container for normally closing said discharge opening, said means also including mechanism coacting with the piston to lock said piston against movement when in one position within the container.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved dispensing device whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view partly in section and partly in elevation illustrating a dispensing device constructed in accordance with an embodiment of my invention;

Figure 2 is a view similar to Figure 1 with the line of section substantially quarter to the line of section in Figure 1;

Figure 3 is a view in plan of the plate carrying the valve and fork, the operating rod for said plate being shown in section; and

Figure 4 is a fragmentary view partly in section and partly in elevation illustrating the mounting for the plate illustrated in Figure 3.

My improved device as herein disclosed comprises a container C of desired capacity and which has its opposite ends closed, one of said ends being closed by a cover member 1. The central portion of the cover member 1 is provided with an opening 2 defined by an outstanding sleeve or gland 3 in which is engaged a packing nut 4. Slidably disposed through the opening 2 and the packing nut 4 is the stem 5 of the piston 6, the nut 4 coacting with suitable packing 7 within the sleeve or gland 3.

The piston 6 is ground to fit snugly within the container C and the stem 5 is of a length to extend outwardly of the packing nut 4 when the piston 6 is at the limit of its movement inwardly of the container C. The stem 5 is tubular with its outer end closed and its inner end open, said inner end portion being disposed through the central portion of the piston 6.

The inner portion *a* of the bore 8 of the stem 5 is enlarged to provide an internal valve seat 9 with which normally engages a ball valve 10, said valve 10 being constantly urged to its seat by the expansible member 11 herein disclosed as a coiled spring of requisite tension. The upper or outer end portion of the bore 8 of the stem 5 is con-

stantly in communication with the atmosphere through a port 12 disposed through a wall of the stem 5.

Interposed between the piston 6 and the bottom 14 of the container C is an expansible member E herein disclosed as a coiled spring which provides means whereby the piston 6 is automatically moved outwardly. As said piston 6 is moved outwardly, the ball valve 10 will move into open position so that air may pass through the port 12 and the bore 8 of the stem 5 and into the container C below or inwardly of the piston 6.

The piston 6 to one side of its center is provided with a port 15 which is normally closed by a ball valve 16, said valve moving away from its seat 17 when the piston 6 moves inwardly. This is to permit any liquid, such as oil, which may be below or inwardly of the piston 6 to pass thereabove upon the inward or downward movement of the piston 6.

The cover or top member 1 to one side of the gland or sleeve 3 is provided with an opening 18 in which is adapted to be detachably arranged the receiving end portion of the spout S. The spout S is removable so that the liquid, such as oil, to be dispensed from within the container C may be readily applied within the container through the opening 18. Before a supply of liquid is applied within the container C, the piston 6 is moved to the limit of its inward or downward movement and held in such position in a manner which will be hereinafter referred to.

Depending from the top or cover member 1 in substantially quarter relation to the opening 18 is a bracket 19 with which is pivotally engaged, as at 20, a lug or finger 21 of predetermined length and which is carried by an end portion of an elongated plate 22, said plate having swinging movement within the container C toward or from the top or cover member 1. The plate 22 in its central portion is provided with an opening 23 through which the stem 5 is freely disposed.

Secured, as at 24, to a corner portion of the plate 22 remote from the lug or finger 21 is the inserted end portion of a rod 25. The rod 25 extends upwardly and has sliding movement through a bushing 26 secured to and extending through the top or cover member 1. The rod 25 extends outwardly beyond the bushing 26 and said extended portion is provided with a button 27 to facilitate the depression or inward movement of the rod 25 when desired. The central portion *b* of the bore 28 of the bushing 26 is enlarged and the portion of said rod 25 within the enlarged portion *b* of the bore is provided with an enlargement or shoulder 29.

Arranged in the lower end of the enlarged portion *b* of the bore 28 is a washer 30 of felt or other yieldable material through which the rod 25 is disposed and interposed between said washer 30 and the enlargement or shoulder 29 is an expansible member 31 herein disclosed as a coiled spring encircling the rod 25. This spring 31 is of sufficient tension to normally maintain the plate 22 at the limit of its movement toward the top or cover member 1.

The plate 22 is provided with a lateral extension 32 of a length to underlie the opening 18. Fixed to said lateral extension 32 is a cone-shaped valve member 33 which coacts with a seat 34 provided at the inserted or connecting end portion of the spout S. The valve member 33 is normally maintained in its closed position by the spring 31.

The plate 22 at a point in relatively close proximity to the lug or finger 21 is provided with an opening 35 through which is slidably disposed an arcuate arm 36, said arm terminating in a fork 37 overlying the face of the plate 22 provided with the valve member 33. The arm 36 inwardly or below the plate 22 has threaded thereon a nut 38 which serves to adjust, as may be required, the position of the fork 37. This spring 39 encircles the arcuate arm 36 and is interposed between the plate 22 and the fork 37 so that said spring 39 serves to constantly urge the fork 37 outwardly or toward the free end of the plate 22.

The stem 5, hereinbefore referred to, is provided with an annular groove 40 so positioned on the stem 5 that when the piston 6 is at the limit of its downward or inward movement, the fork 37 will engage within said annular groove 40 and thereby hold or lock the piston in such position. This is of particular advantage when a supply of liquid, such as oil, is to be applied within the container C and when said container is not in use.

With the fork 37 in locking engagement with the stem 5, depression of the rod 25 will cause the plate 22 to swing in a direction away from the top or cover member 1 and such swinging movement, in addition to moving the valve member 33 into open position, will move the fork 37 sufficiently to free the same from the stem 5, whereupon the spring 11 will be free to urge the piston 6 outwardly to effect the desired force feed of the oil or other liquid within the container C.

After the stem 5 has been released and the rod 25 relieved of pressure, the plate 22 will automatically swing in a direction toward the top or cover member 1 and thereby cause the valve member 33 to engage its seat 34 and thus close the flow through the spout S. It will also be understood that the flow

of oil through the spout S may be readily regulated by proper manipulation of the rod 25.

With a dispensing device constructed in accordance with an embodiment of my invention, it will be readily understood that the oil or other liquid within the container C may be discharged through the spout S irrespective of the position of the container C.

It is to be noted that the convolutions or fakes of the spring E gradually decrease in diameter from the opposite ends of said spring toward the center thereof. This is of particular advantage as it permits said spring to be compacted within a minimum of space so that the extent of the downward or inward movement of the piston 6 may be materially increased.

From the foregoing description it is thought to be obvious that a dispensing device constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:

1. A device of the character described comprising a container provided with a discharge opening, a piston working within said container, automatic means for moving said piston in one direction to effect a force feed through the discharge opening, a valve mounted within the container, means for normally urging the valve into closed position, and means associated with the last named means for holding the piston against movement in one direction when in a predetermined position.

2. A device of the class described comprising a container provided with a discharge opening, a movable member supported within the container, a valve carried by said member, means coacting with the member and extending exteriorly of the container for moving the valve into open position, a piston arranged within the container, means for automatically moving said piston in one direction to effect a force feed through the discharge opening of the container, and means carried by the member for coaction with the piston to hold the piston against movement when in one position.

3. A device of the class described comprising a container provided with a discharge opening, a movable member supported within the container, a valve carried by said member, means coacting with the member and extending exteriorly of the container for moving the valve into open position, a piston arranged within the container, means for automatically moving said piston in one direction to effect a force feed through the discharge opening of the container, and means carried by the member for coaction with the piston to hold the piston against movement when in one position, the means for moving the member to adjust the valve into open position also releasing said last named means from the piston.

4. A device of the class described comprising a container provided with a discharge opening, a piston mounted within said container, automatic means coacting with the piston to effect a force feed through the discharge opening of the container, a stem carried by the piston and extending exteriorly thereof, a member supported for swinging movement within the container, means for moving said member, and a yoke carried by the movable member and engaging the stem to hold the piston against movement when said piston is in one position.

5. A device of the class described comprising a container provided with a discharge opening, a piston mounted within said container, automatic means coacting with the piston to effect a force feed through the discharge opening of the container, a stem carried by the piston and extending exteriorly thereof, a member supported for swinging movement within the container, means for moving said member, an arm slidably disposed through said member, said arm and stem having coacting means to hold the piston against movement when in one position, and automatic means for constantly urging the arm toward the stem.

6. A device of the class described comprising a container provided with a discharge opening, a piston mounted within said container, automatic means coacting with the piston to effect a force feed through the discharge opening of the container, a stem carried by the piston and extending exteriorly thereof, a member supported for swinging movement within the container, means for moving said member, an arm slidably disposed through said member, said arm and stem having coacting means to hold the piston against movement when in one position, and means coacting with the arm and member to adjust the arm with respect to the stem.

In testimony whereof I hereunto affix my signature.

CARL H. LEONARD.