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1,676,358

C. R. SCHOTT

DISPENSING DEVICE

Filed March 21, 1927

Fig. 1.

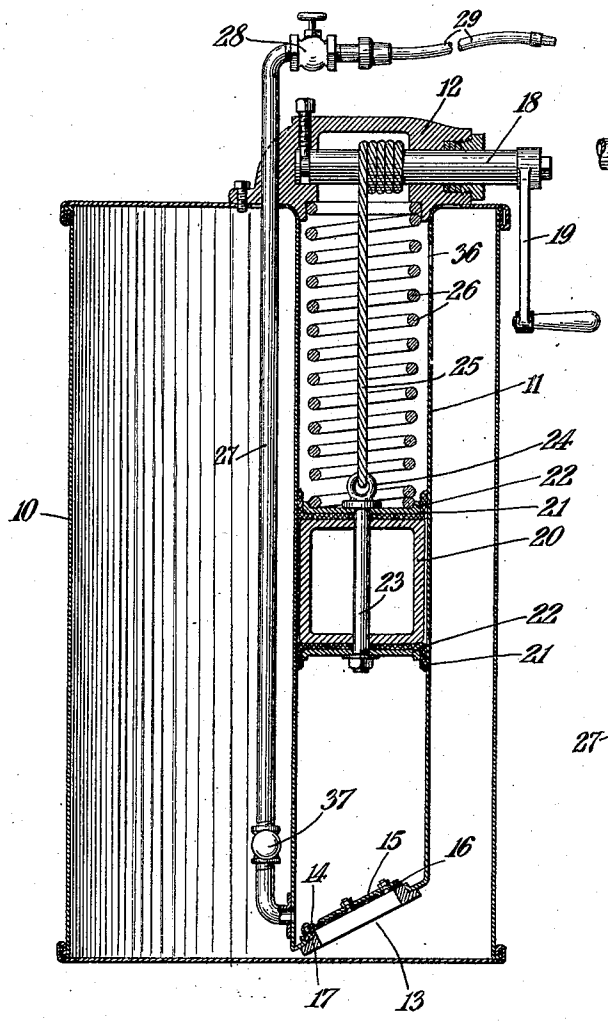


Fig. 2.

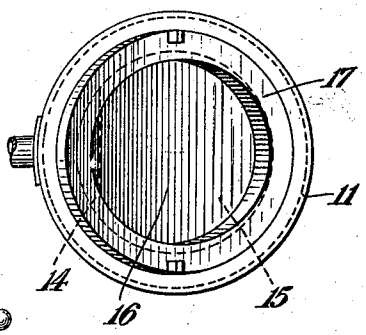
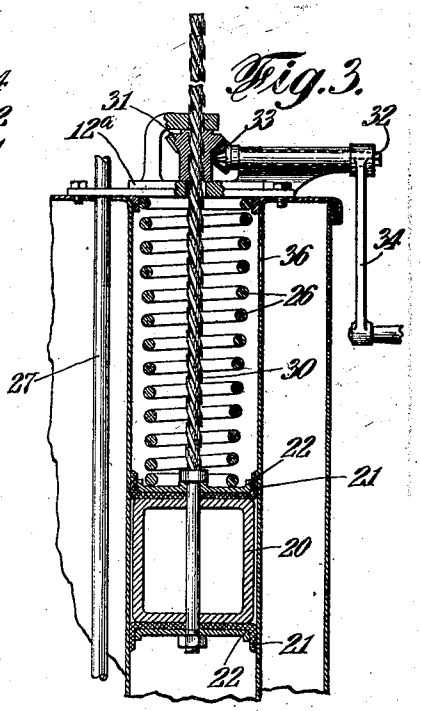


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES R. SCHOTT, OF NEW YORK, N. Y.

DISPENSING DEVICE.

Application filed March 21, 1927. Serial No. 176,892.

This invention relates to dispensing devices and more especially to devices for dispensing lubricating oils or greases. With most, if not all, the dispensing devices used in lubricating in the transmissions and differentials of automobiles, the lubricant must be taken from the original container and placed in the dispensing device. This necessitates considerable labor and the handling of the containers, which is a dirty and disagreeable job.

An object of this invention is a simple, inexpensive and efficient dispensing device which may readily be inserted in the original container in which the lubricant is sold and by which the lubricant may be removed from the container and delivered to the transmissions, differentials and the like, as desired.

One embodiment of the invention comprises a cylinder which may be inserted through the aperture which is provided in one end of the standard container in which such lubricants are marketed. At one end of the cylinder is provided a head which rests upon the end of the container and is attached thereto by the bolts which were used to hold in place the cap for the aperture. The foot of the cylinder is provided with an inlet check valve and a plunger is slidably mounted in said cylinder. A resilient member is arranged within the cylinder to force the plunger toward the foot of the cylinder. The plunger is connected with suitable means in the head for pulling the plunger toward the head, thereby compressing the spring. A delivery tube leads from a point near the foot of the cylinder up along the cylinder and through the aperture in the container and is provided with a suitable valve.

This device is arranged in the container with the plunger adjacent the foot of the cylinder and the valve in the delivery line closed. The plunger is then lifted, thus creating a partial vacuum in the cylinder. The lubricant thereupon flows from the body of the container through the inlet valve into the cylinder. After the plunger has been fully lifted, it is allowed to drop back until the pressure within the cylinder counterbalances the spring pressure. The device is now ready to dispense the lubricant which may be accomplished merely by opening the valve in the delivery pipe. Opening this valve, the grease flows out under the pressure supplied by the spring in the cylinder. After the lubricant in the cylinder has been all forced out, the operation may be repeated.

Other objects, novel features and advantages of this invention will be apparent from the following specification and accompanying drawings wherein

Figure 1 is a sectional view of a device embodying the invention arranged within a container;

Fig. 2 is a bottom view of the cylinder; and

Fig. 3 shows a modified form of operating mechanism.

10 designates the usual type of container in which fluid lubricant is ordinarily marketed. In one end of such containers is provided an aperture through which the lubricant is introduced into the container and which is closed by a suitable cover held in position by stud bolts.

The dispensing device consists of a cylinder 11 provided at one end with a head 12. This cylinder is arranged to be inserted into the container through the aforementioned aperture after the cover has been removed and is held in place by the stud bolts by means of which the cover was held in place. At the lower end of the cylinder 11 is provided an inlet check valve 13. This valve consists of two segmental rigid members 14 and 15 which are interconnected by a flexible circular member 16 to which each of the elements 14 and 15 is suitably attached. The smaller segment 14 is mounted upon a collar 17 threaded into the lower part of the cylinder 11, the larger portion 15 being free to swing inwardly. Preferably this valve is arranged obliquely as shown, so that by tilting the container when nearly empty, substantially all the lubricant may be removed.

In the head 12 is mounted a windlass 18 which is provided with a removable handle 19. A piston 19 is arranged within the cylinder 11 and is connected with the windlass 12. On the top and the bottom of the piston 20 are provided pump washers 21 which are overlaid with metal discs 22. A bolt 23 passes through the piston, discs and washers which it clamps together. The bolt 23 is provided with an eye 24 from which a cable 25 extends to the windlass 18. A compression spring 26 is interposed between the head 12 and the top of the piston 20. A discharge pipe 27 leads from a point near the bottom of the cylinder 21 through the head 12.

This pipe is provided with a valve 28 and has extending from its end a flexible tubing 29.

In Fig. 3, the piston 20 is carried by a rod 30 suitably threaded. On the head 12^a is rotatably mounted an interiorly threaded gear 31, the rotation of which causes longitudinal movement of the rod 30. A shaft 32 is rotatably mounted in the head 12^a and is provided with a pinion 33 which meshes with the pinion 31. A removable handle 34 is provided for rotating the shaft 32. A spring 26 is interposed between the head 12^a and the piston 20.

In the operation of this device, the piston 20 is let down to the bottom of the cylinder 11 and the valve 28 closed. The piston 20 is then drawn up to the top of the cylinder, thereby compressing the spring 26. This creates a partial vacuum below the piston 20 in the cylinder 11 and lubricant flows into the cylinder through the valve 13. After the piston 20 has been completely lifted, it is allowed to move back under the influence of the spring 26 until the pressure in the cylinder counterbalances the spring pressure. The operating handle is then removed. To dispense grease from the cylinder, it is necessary only to open the valve 28, the spring 26 forcing the plunger 20 downwardly, thereby causing grease to flow out through the tubing 29. After the cylinder has been practically emptied of grease, it may be refilled as above described. The thread on the rod 30 is of such pitch that, under the influence of the spring 26, it will cause the gear 31 to rotate, thereby allowing downward movement of the plunger 20. Using this apparatus, the lubricant may be taken directly from the original container to the transmission differential or the like without any possibility of grit or the like getting into the lubricant. This device ensures that the lubricant is clean when supplied to the parts to be lubricated.

Apertures 36 are provided at the top of the cylinder to permit return to the container of any grease that may have worked past the plunger 20 and to prevent any compression in the upper part of the cylinder. Preferably, a check valve 37 is provided in the pipe 27 so that the cylinder may be filled with lubricant upon lifting the piston 20, even though the valve 28 inadvertently be left open.

It is understood, of course, that various changes may be made in the structural details without in any way departing from the spirit of the invention as set forth in the appended claims.

I claim:

1. A dispensing device for use with containers in which lubricant is marketed, said device comprising a cylinder adapted to be inserted through the aperture provided in one end of such container, said cylinder having its lower end terminating in an obliquely-arranged inlet flap valve, a head connected to said cylinder to rest on the end of said container to seal the same, a plunger slidably mounted in said cylinder, resilient means interposed between said plunger and said head, a delivery pipe leading from a point near the lower end of said cylinder and passing through said head, a valve in said delivery pipe, and means sealed in said head for moving said plunger in a direction to compress said resilient means.

2. A dispensing device for use with containers in which lubricant is marketed, said device comprising a cylinder adapted to be inserted through the aperture provided in one end of such container, said cylinder having its lower end terminating in an obliquely-arranged inlet flap valve, a head connected to said cylinder to rest on the end of said container to seal the same, said head having a cavity communicating with said cylinder, a drum sealed in said head and extending into said cavity, a cable having one end connected to said drum and the other end to said plunger, resilient means interposed between said plunger and head, a delivery pipe leading from a point near the lower end of said cylinder and passing through said head, and a valve in said delivery pipe.

In testimony whereof, I have signed my name to this specification.

CHARLES R. SCHOTT.