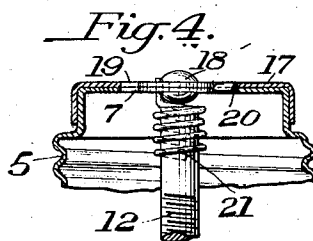
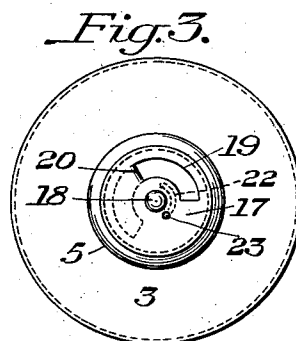
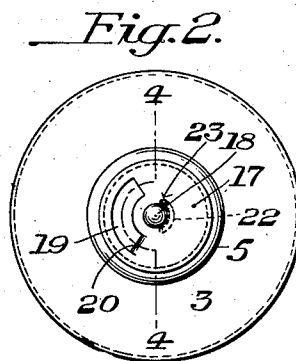
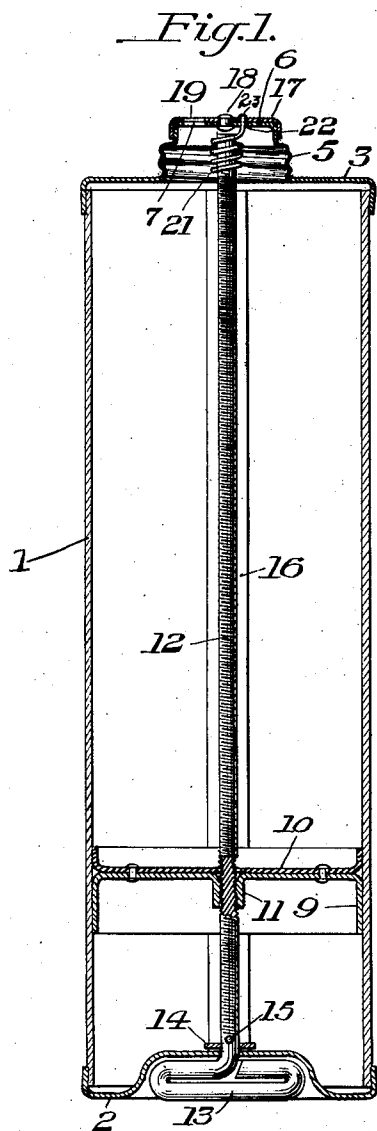


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 RECEPTACLE FOR CONTAINING AND DISCHARGING SEMISOLID AND PASTY SUBSTANCES.
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RECEPTACLE FOR CONTAINING AND DISCHARGING SEMISOLID AND PASTY SUBSTANCES.

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To all whom it may concern:

Be it known that I, JAMES F. CRAVEN, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Receptacles for Containing and Discharging Semisolid and Pasty Substances, of which the following is a specification.

This invention relates to receptacles for containing and discharging semi-liquid, semi-solid and pasty substances.

The device is intended more particularly for putting up lubricants in the form of greases and discharging the same into grease cups of machines.

The particular purpose is to enable the grease to be put up in such form that it can be conveniently shipped and handled and the grease discharged therefrom without liability of dirt or grit coming into contact with the grease or entering the bearings, and also so as to prevent smearing up the machinery or the hands of the user. The invention however is not limited to this particular use, but is adapted for putting up in a substantially sealed condition any semi-liquid, semi-solid or pasty substance, and delivering the same from the container in any desired quantity or quantities.

The particular purpose of the present invention is to provide a device for the purpose specified, so constructed that the outlet orifice is automatically closed when the operation of discharging the contents ceases, and also so constructed that the means for forcing the contents from the receptacle cannot be moved in the wrong direction.

In the accompanying drawing Figure 1 is a vertical section through a receptacle having the invention applied thereto; Fig. 2 is a plan view of the same showing the discharge orifice open; Fig. 3 is a plan view with the discharge orifice closed; and Fig. 4 is a section on the line 4-4, Fig. 2.

The invention is applicable to any form of container provided with a discharge orifice and with means for forcing the contents through said orifice.

In the drawings 1 indicates a receptacle or container which may be of any desired size or shape and built up or constructed in any desired way. As shown the container comprises a substantially cylindrical tube 1 which may be formed of sheet metal or other thin substance, but is shown as made from paste or paper board. One end of this

tube is closed by means of the bottom 2 composed of sheet metal and crimped onto the end of the paper tube. The other end is closed by means of the head 3 also formed of sheet metal and crimped onto the tube, and provided with a projection 5 which is externally threaded to have attached thereto a delivery spout or nozzle, and whose outer end 6 is provided with the discharge orifice 7.

The means for forcing the contents out of the container is shown as a piston or follower 9, shown as formed of cupped sheet metal and provided with a cup leather 10 or other yielding means forming a close fit with the tube and facing toward the discharge orifice. When the receptacle is full this piston or follower lies at one end of the container and by moving it toward the discharge opening the contents are expelled from the container.

Various means may be used for moving the piston toward the discharge orifice. As shown the piston is provided with a threaded hub 11 which is engaged by a threaded screw or rod 12 lying axially in the receptacle and extending through an opening in the bottom 2 and provided at its outer end with a handle 13 or other suitable means whereby it may be turned. Endwise movement of the screw or threaded rod 12 is prevented by means of the washer 14 surrounding said screw or rod just inside of the bottom 2 of the receptacle and held in place by means of pin 15. It is obvious therefore that when the screw or rod 12 is rotated in the proper direction, the piston or follower 9 is caused to travel toward the discharge orifice. The piston or follower is prevented from rotation by the frictional engagement of its periphery with the walls of the tube, but if desired a strip of pasteboard 16 may be secured to the inner face of the tube and made to engage a recess or cut-away portion in the periphery of the piston or follower.

The parts so far described may be of various forms and the specific devices shown have been chosen merely for purposes of illustration as the improvements herein claimed are applicable to any form of device in which there is a rotating shaft or member for actuating the piston. The specific improvements are for the purpose of preventing rotation of the piston actuating means in the wrong direction and also for operating the closure for the discharge orifice 7.

The closure may be of various forms. It is illustrated in the form of a cap 17 which fits over the projection 5 and is rotatably secured thereto, such as by rivet 18. The cap 17 has in its end an opening 19 of substantially the same size and shape as the discharge orifice 7 in the end of nozzle 5. Obviously when these openings are brought into register the contents can escape from the receptacle, and when brought out of register the discharge orifice is closed. Suitable means are provided for limiting the rotation of the closing cap in both directions. This means may be of various forms and is shown as a tongue 20 struck from the metal of the cap 17 and projecting down into the discharge orifice 7 and adapted to contact with the edges of the opening 7 at opposite ends thereof, when the closure is rotated in opposite directions, thereby limiting the extent of rotary movement of the closing cap.

The means for actuating the closure from the piston actuating means is shown in the form of a helical spring 21 which surrounds the unthreaded end of the screw or rod 12 and has one end thereof extending through a slot 22 in the end of projection 5 and secured to the closing cap 17 at 23, and having its other end perfectly free. The coil is formed of resilient metal, such as steel wire, and is so coiled as to embrace the screw or rod 12 quite tightly, and has a sufficient number of turns so that the frictional engagement thereof with the screw or rod 12 tends to carry said coil with the screw or rod 12 whenever the latter is turned. Now it is perfectly obvious that if the screw or rod 12 is turned in the proper direction, that is clockwise, it will carry the coil with it and therefore turn the closing cap 17 in the same direction. The parts are so arranged that this movement brings the holes 7 and 19 into register as shown in Fig. 2, or opening the discharge orifice. As soon however as the tongue 20 on the closing cap contacts with the end wall of opening 7 further rotation of the closing cap is stopped. The screw or rod 12, however, can still be rotated as the frictional engagement of the coil 21 therewith offers but little resistance to the free rotation thereof in the direction stated, wherein the frictional effect of the rotating screw or rod in the coil tends to open up or expand said coil. The screw it will be observed is left-handed, so that the rotation thereof clockwise as described, causes the piston 9 to move toward the discharge orifice and to force the contents from said discharge orifice. This movement is continued until the required amount of contents is discharged.

To close the discharge orifice the handle 13 is turned slightly backward, that is counterclockwise, whereupon the closing cap is turned in the reverse direction from its

opening movement by reason of the coil 21 being carried around backwardly with the screw or rod 12. This movement continues until the tongue 20 contacts with the opposite wall of opening 7, in which position the openings 7 and 18 are entirely out of register and the discharge orifice is closed. When this occurs further backward rotation of the closing cap is stopped, and the end 22 of the coil 21 therefore becomes stationary. Now the coil is wound in such a direction that when the end 22 thereof is stationary the frictional effect of the rotating screw or rod in said coil tends to further wind up or contract the coil, and the latter immediately grips the screw or rod with such force that it instantly stops further backward rotation of the screw or rod. This gripping effect is so positive that with even a small spring of a few coils, further backward rotation cannot be had without breaking either the spring or some other part. Consequently the piston cannot be moved backwardly, thereby preventing the waste of time which would be caused if the operator turned the screw or rod in the wrong direction to move the piston away from the contents of the receptacle, and after discovery of the error then turning the screw in the right direction.

The screw or rod 12 has no backward rotary movement except through the angle which is permitted by the tongue 20 moving in the discharge orifice 7, which is not more than one quarter of a turn.

The devices described are of very simple construction and cheap to manufacture, and add very little to the cost of the container. They provide a positive and substantially automatic opening and closing of the discharge orifice so that dirt is absolutely prevented from entering the container, and also prevent the loss of time which would occur in case the piston actuating means were free to be rotated in the wrong direction.

What I claim is:

1. A device of the character described comprising a receptacle provided with a discharge orifice, means for forcing the contents through said discharge orifice, a closure for said discharge orifice, and a single means connecting the forcing means and said closure and arranged to both open and close said closure and also prevent rearward movement of said forcing means.

2. A device of the character described comprising a receptacle provided with a discharge orifice, a piston or follower in said receptacle arranged when moved to force the contents through the discharge orifice, a rotating or turning member for moving said piston or follower, and a single means connecting said rotating or turning mem-

ber and said closure and arranged to both open and close said closure and also preventing rearward rotation of said piston actuating means.

5 3. A device of the character described comprising a receptacle provided with a discharge orifice, a closure for said discharge orifice, a piston or follower for forcing the contents through said discharge orifice, a rotary threaded member engaging
10 said piston or follower, and a single means connecting said screw or threaded rod and said closure and arranged to both open and close said closure and also prevent rearward
15 rotation of said screw or threaded rod.

4. A device of the character described comprising a receptacle provided with a discharge orifice, a piston or follower for forcing the contents through the discharge
20 orifice, a closure for said discharge orifice having a limited rotary movement, a rotary member for actuating said piston, and means connecting said rotary member and said closure and frictionally attached to one
25 thereof.

5. A device of the character described

comprising a receptacle provided with a discharge orifice, a piston or follower for forcing the contents through said discharge orifice, a rotary member for actuating said
30 piston or follower, a rotary closing device for said discharge orifice, and a coiled spring connecting said closing device and said rotary member and attached to one
35 thereof.

6. A device of the character described comprising a receptacle provided with a discharge orifice, a member for closing said discharge orifice and having a limited rotary movement, a piston or follower for
40 forcing the contents through said discharge orifice, a rotary member for actuating said piston, and a coiled spring having one end attached to said closing device and having
45 its coils surrounding and frictionally engaging said rotating actuating member.

In testimony whereof, I have hereunto set my hand.

JAMES F. CRAVEN.

Witnesses:

W. C. LYON,

MARY E. CAHOON.