

J. F. CRAVEN.
 RECEPTACLE FOR CONTAINING AND DISCHARGING SEMISOLID AND PASTY SUBSTANCES.
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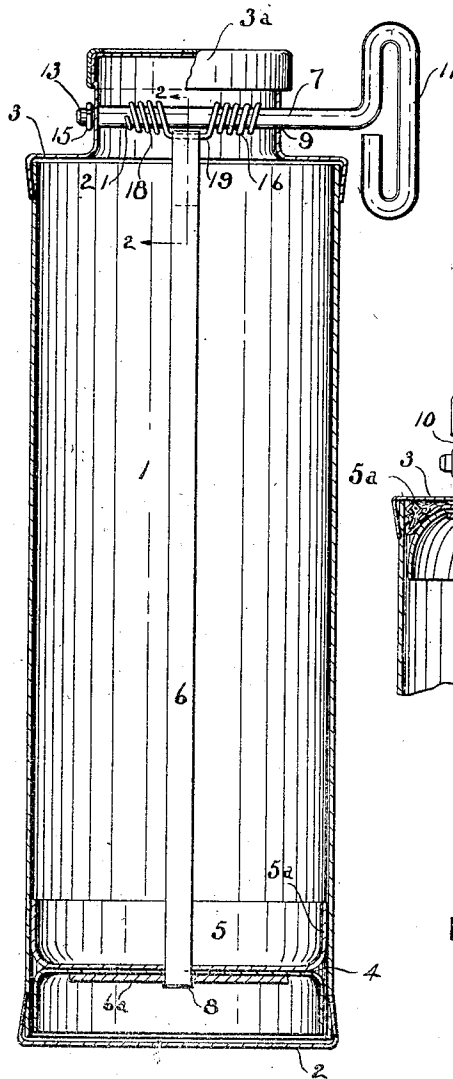


FIG. 1

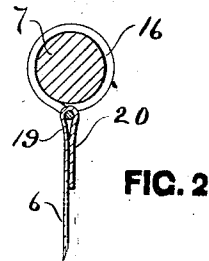


FIG. 2

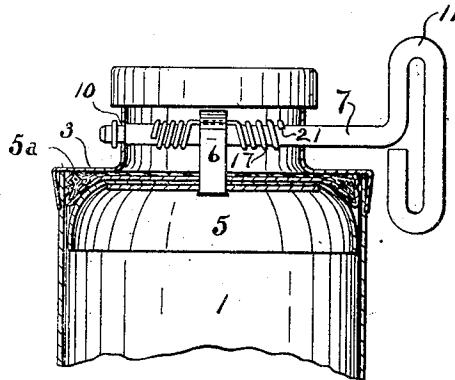


FIG. 5



FIG. 3

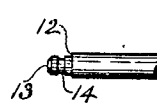


FIG. 4

WITNESSES

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RECEPTACLE FOR CONTAINING AND DISCHARGING SEMISOLID AND PASTY SUBSTANCES.

1,036,969.

Specification of Letters Patent.

Patented Aug. 27, 1912.

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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, storing, transporting and discharging semi-solid and pasty substances.

The device is intended more particularly for putting up lubricants in the form of greases for the purpose of enabling grease to be supplied to bearings without the liability of dirt or grit entering the bearings with the grease, and also prevent smearing or soiling the hands of the workman or the machinery. The invention, however, is not limited to this particular use but is adapted for putting up in substantially sealed condition any semi-solid or pasty substances, such as soap, cosmetics, etc., and for delivering the same from the container in any desired quantity or quantities.

The invention is an improvement upon that described and shown in my prior application filed November 11, 1911, Serial No. 659,725, for a receptacle of the character stated.

One object of the present invention is to provide an improved form of connection between the winding shaft and the means within the container for discharging the material therein, which is not liable to derangement or breakage by the hands of the operator and is of simple and efficient construction.

Another object is to provide a form of container which will more nearly completely discharge its contents than prior containers.

The invention comprises the construction and arrangement of parts hereinafter described and claimed.

In the accompanying drawing Figure 1 is a vertical section through a device constructed according to my invention; Fig. 2 is a detail cross section on the line 2-2, Fig. 1, looking in the direction of the arrows; and Figs. 3 and 4 are, respectively, detail views of a washer and of one end of the winding shaft; and Fig. 5 is a sectional

view corresponding to Fig. 1 and showing a different position of the parts.

The receptacle or container may be of any desired size or shape and may be built up or constructed in any preferred manner. As shown in the drawings, it is formed as a substantially cylindrical tube 1 which may be constructed of glass, porcelain, black plate or tin plate, or, if preferred, of some thin or inexpensive material, as paste or paper board, and is shown as formed of the latter. One end of this receptacle is permanently closed by a head or cap 2, which is shown as composed of sheet metal crimped onto and over the paper tube. Firmly secured to the other end of the container is a second head or cap 3, which may be fastened to the container in any manner and which may be of any suitable material, preferably thin sheet metal, and is shown as crimped to the body of the receptacle. A rotatable closure 3^a is mounted on the cap 3 and the closure 3^a and cap 3 are preferably provided with registering openings adapted to be covered and uncovered by rotation of the closure in a well understood manner. Mounted to move endwise throughout the length of the container is a piston or follower 4. This may be formed either as a solid block of wood, sheet metal, heavy paper or other material and is shown as constructed of a pair of cup-shaped blanks 5 of paper and having cylindrical outer walls or flanges 5^a of slightly less diameter than the internal diameter of the container. These cups are arranged back to back or in such positions that their rims or flanges 5^a project in opposite directions along the cylinder to afford a comparatively long bearing therein and prevent wobbling of the piston as it moves along the container. Preferably, the material of which the cups of the piston are constructed is of such strength that it will retain its shape and force the grease or other semi-solid material from the tube. Nevertheless, the material is collapsible and is not intended to retain permanent form. As shown in Fig. 5, when the piston moves nearly to the open end of the tube, the forward cup 5 which, of course, is full of the contents of the container, encounters the end closure 3 and, upon further rotation

of the winding shaft is collapsed there-
against. Suitable means for moving the
piston or follower 4 endwise through the
container is provided, comprising essen-
tially a flat strip or band 6 of flexible sheet
metal or which may be formed as a wire or
cord, and which is wound upon a shaft 7.
The flexible connector 6 is secured to the
piston or follower in any suitable manner.
10 As shown, it is passed through an aperture
or slot in the piston and through a large
metal washer 6^a and is then turned upon
itself on the opposite side thereof to form a
loop or enlargement 8, preventing with-
drawal of the connector through the slot or
opening in the piston.

The winding shaft 7 for causing move-
ment of the piston or follower may be
mounted at either end of the receptacle or
20 container as described and illustrated in
my prior application heretofore referred to.
As shown, however, it is mounted in the dis-
charge end of the receptacle and comprises
a smooth cylindrical rod extending through
25 aligned apertures 9, 10 in the walls of the
cap 3 and is provided on its outer end with
a suitably bent portion 11 forming a key or
handle for rotating the shaft. One end of
the shaft or rod 7 is provided with a shoul-
30 der 12 and a reduced end 13 having an an-
nular groove 14 therein. A split washer 15,
shown in Fig. 3, is sprung into place in the
groove 14 and the engagement of the washer
with the outer wall of the cap and of the
35 shoulder 12 with the inner face thereof pre-
vents endwise movement of the rod or shaft,
as will be readily understood.

Coiled about the central portion of the rod
or shaft 7 is a spiral spring 16 having op-
40 posite branches 17 and 18 coiled in the same
direction around but in opposite directions
along the rod and joined to each other by
a central straight portion 19. This spring
is so coiled and is of such size that each of
45 its branches fits snugly upon the rod or shaft
7. The flexible connector 6 is secured to
the straight middle portion or loop 19 of
the spring by having a fold 20 thereof
passed around or through the straight por-
50 tion 19 and secured to the body of the con-
nector in any convenient manner.

The operation of the parts of my im-
proved container will be readily understood
from the foregoing description taken in con-
55 nection with the accompanying drawings.
As stated, the coil 16 is made of spring wire
and is so wound as to fit closely or snugly
upon the shaft. In the construction shown
in the drawings, if the key 11 is rotated in a
60 clockwise direction, the branches 17 and 18
of the coil close up and grip the rod or shaft
7 with such a force as to cause the spring
to rotate bodily with the rod or shaft. The
end portions 21 of the spring bite into the
65 surface of the shaft and the greater the

force which is exerted to turn the rod or
shaft in a clockwise direction, the greater is
the tendency of the spring to grip the shaft
and rotate therewith. Under such circum-
stances, the straight portion 19 of the spring
70 rotates the axis of the rod or shaft and
winds the flexible connector 6 thereupon, as
is readily understood, thus drawing the pis-
ton or follower 4 through the length of
the container and discharging its contents
75 through the discharge opening 21 in the end
thereof. If, however, the rod or shaft 7 is
rotated in a counter clockwise direction,
such movement causes the coils of the spring
to slightly open up and no tendency exists
80 for the spring to rotate with the rod or
shaft. Under such conditions, the rod or
shaft rotates loosely and has no effect what-
ever upon the spring, flexible connector or
piston.

With prior constructions, where the
spring has been secured at one end to a fixed
portion of the container to prevent back-
ward rotation of the shaft, it has sometime
occurred that sufficient power is exerted
90 upon the shaft to wrench the spring from its
fastenings. In my improved construction,
the spring has no connection with any fixed
part and cannot be broken. The present
construction also obviates the necessity of
95 slotting or otherwise deforming the central
portion of the rod or shaft 7 to provide a
means of securement thereto of the flexible
connector. It will also be observed that
when the piston or follower approaches the
100 last portion of its traverse through the re-
ceptacle, no danger exists of backward ro-
tation of the rod or shaft uncoiling the flexi-
ble connector therefrom and, therefore,
clogging up the space in the end of the re-
105 ceptacle and possibly preventing further
proper operation of the device. When the
piston reaches nearly the end of its stroke,
the forward cup 5 contacts with the end
closure 3. As stated, this is of metal and the
110 cup is formed of paper. Further operation
of the winding shaft squeezes the rim or
flange 5^a of the cup between the washer 6^a
and closure 3^a, collapsing and crumpling it
up as shown in Fig. 5. In doing this, the
115 grease or other material in the cup is
squeezed out from the tube. It is, therefore,
necessary to waste or throw away very lit-
tle of the contents of the tube when it is dis-
carded.

What I claim is:—

1. A device of the character described
comprising, a receptacle having a discharge
orifice, a piston or follower in said recep-
120 tacle arranged when moved to force the con-
tents through the discharge orifice, a flexi-
ble connector for moving said piston, a
winding shaft for said flexible connector,
and connections between said shaft and
flexible connector so constructed and ar-

ranged that the shaft may rotate loosely in one direction and wind the connector thereupon when rotated in the other direction.

2. A device of the character described comprising, a receptacle having a discharge orifice, a piston or follower in said receptacle arranged when moved to force the contents through the discharge orifice, a flexible connector for moving said piston, a winding shaft for said connector, and means connecting said shaft and flexible connector and arranged to be rotated upon rotation of the shaft in one direction only.

3. A device of the character described comprising a receptacle having a discharge orifice, a piston or follower in said receptacle arranged when moved to force the contents through the discharge orifice, a flexible connector for moving the piston, a rotatable shaft for moving said connector and means mounted upon said shaft for winding said connector thereupon, said shaft being freely rotatable in said means in one direction and said means being rotatable with said shaft in the other direction.

4. A device of the character described comprising a receptacle having a discharge orifice, a piston or follower in said receptacle arranged when moved to force the contents through the discharge orifice, a flexible connector for moving the piston, a shaft rotatably mounted in said receptacle, a spring loosely coiled upon said shaft, said spring having one portion thereof connected to said flexible connector.

5. A device of the character described comprising a receptacle having a discharge orifice, a piston or follower in said receptacle arranged when moved to force the contents through the discharge orifice, a flexible connector for moving the piston, a shaft rotatably mounted in said receptacle, and means for connecting said flexible connector to said shaft comprising a wire coiled around said shaft and loosely engaging the same, said wire being connected to said flexible connector, whereby rotation of the shaft

in one direction will wind the flexible connector thereupon.

6. A device of the character described comprising a receptacle having a discharge orifice, a piston or follower in said receptacle arranged when moved to force the contents through the discharge orifice, a flexible connector for moving the piston, a shaft rotatably mounted in said receptacle, and means for connecting said shaft to said flexible connector comprising a spring having a plurality of branches, each coiled around said shaft, said spring being connected to said flexible connector.

7. A device of the character described comprising a receptacle having a discharge orifice, a piston or follower in said receptacle arranged when moved to force the contents through the discharge orifice, a flexible connector for moving the piston, a shaft rotatably mounted in said receptacle, and means for connecting said shaft to said flexible connector comprising a spring having oppositely disposed coils wound about said shaft, said spring being provided with means for connecting said coils, said means being secured to said flexible connector.

8. A device of the character described comprising a receptacle having a discharge orifice, a piston or follower in said receptacle arranged when moved to force the contents through the discharge orifice, a flexible connector for moving the piston, a shaft rotatably mounted in said receptacle, and means for connecting said shaft to said flexible connector comprising a spring having a pair of branches, said branches being coiled in opposite directions along said shaft, and said spring having a loop connected to said flexible connector.

In testimony whereof, I have hereunto set my hand.

JAMES F. CRAVEN.

Witnesses:

MARY E. CAHOON,
E. L. HYDE.