J. F. CRAVEN.

RECEPTACLE FOR CONTAINING AND DISCHARGING SEMISOLID AND PASTY SUBSTANCES.

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993,579. Patented May 30, 1911.

FIG. 2

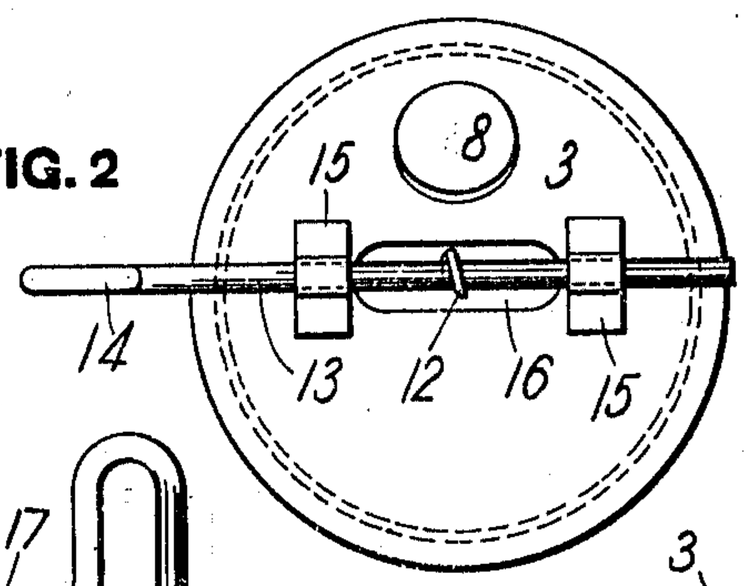


FIG. 3

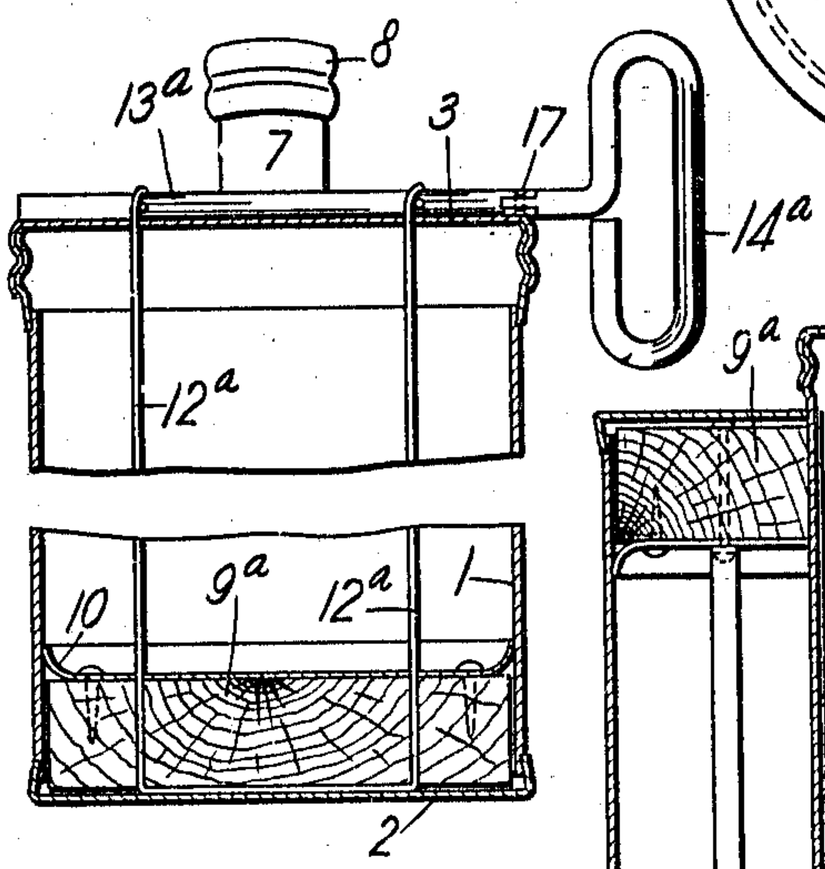
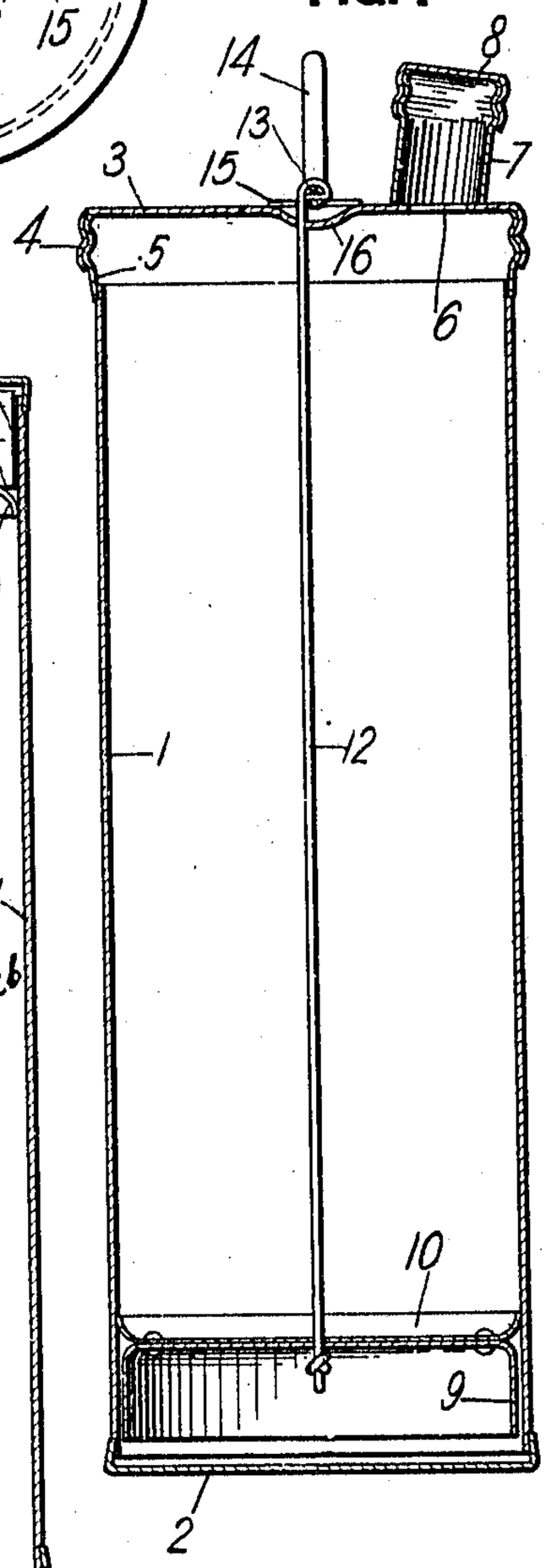
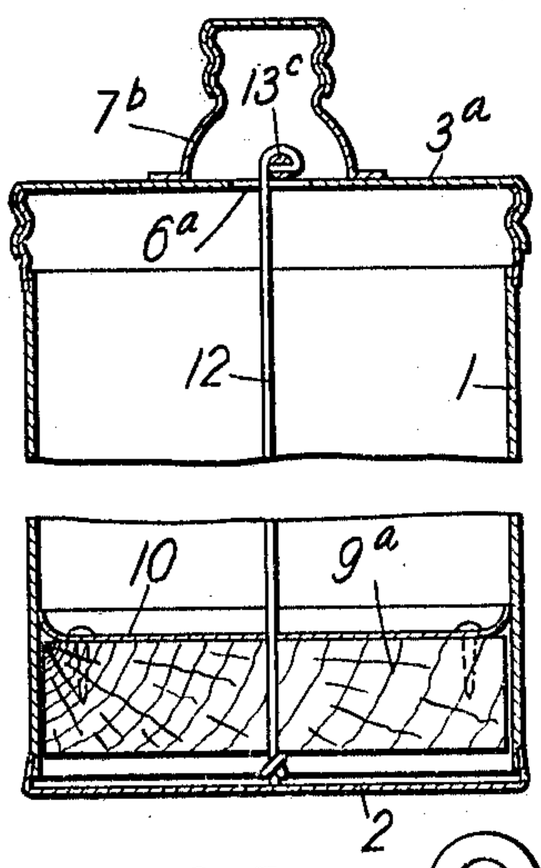


FIG. 1





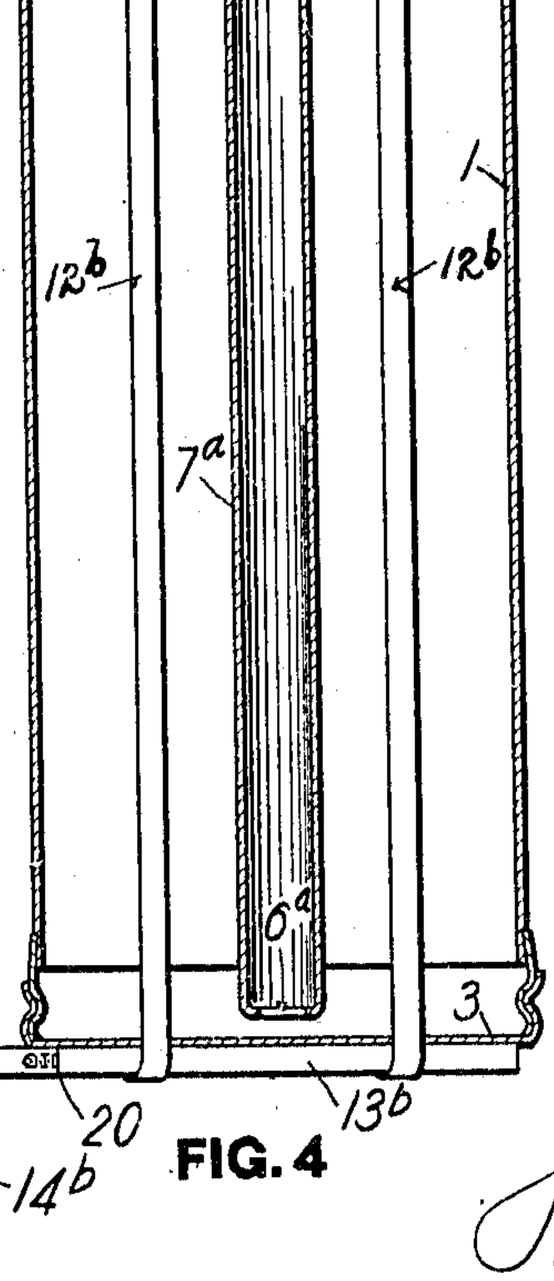


FIG. 5

FIG. 4

WITNESSES

Chas. Sopkerman.

Mary E. Cahoon

INVENTOR

James F. Craven

By Fredk W. Hunter

Attorney

UNITED STATES PATENT OFFICE.

JAMES F. CRAVEN, OF PITTSBURG, PENNSYLVANIA.

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 Pittsburg, 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 a receptacle 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 and discharging the same into grease cups of machines, for the purpose of enabling grease to be supplied to bearings without liability of dirt or grit entering the bearings with the grease, and also to 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 a substantially sealed condition any semi-solid or pasty substance such as soap, etc., and delivering the same from the container in any desired quantity or quantities.

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

In the accompanying drawing Figure 1 is a vertical section through one form of the device; Fig. 2 is a plan view of the same; and Figs. 3, 4, and 5 are vertical sections through modified forms of the device.

The receptacle or container may be of any desired size or shape, and may be built up or constructed in any desired way. As shown in the drawings the receptacle is formed by a substantially cylindrical tube 1 which may be of sheet metal or other thin substance, and is shown as formed from paste or paper board. One end of this receptacle is permanently closed by the head 2, which as shown is composed of sheet metal crimped onto the end of the paper tube. The other end of the receptacle is provided with a removable closure or head in order to enable the semi-solid or pasty substance to be filled into the receptacle. As shown the closure comprises a cap 3 secured to the body of the receptacle by a threaded connection 4 with a sheet metal ring 5 which is crimped onto the pasteboard body 1. Any other suitable closure for this end of the receptacle will answer the purpose.

In the form shown in Figs. 1, 2, and 3 the outlet orifice is at 6 through the cap 3, said orifice leading to the discharge tube or spout 7 which in turn is closed by a cap 8 having a threaded or other suitable tight connection with said spout. In the receptacle 1 is a movable piston or follower 9 provided with a leather cup 10 or other suitable means providing a close fit in the receptacle. The piston or follower 9 may be either stamped up of sheet metal, as shown in Fig 1, or may be a wooden disk as shown at 9^a in Figs. 3, 4, and 5, or may be formed of any other suitable substance. In order to force the substance from the container the piston is moved longitudinally in the tube 1. Various means may be adopted for this purpose. As shown in the drawings the movement of the piston is effected by connecting thereto a wire or wires, or other suitable flexible connectors, which pass through openings in the opposite head of the receptacle and are adapted to be wound upon a suitable rotating key or shaft. Figs. 1 and 2 show a single wire 12 secured centrally to the piston or follower 9 and passing through a small hole in the cap 3 and then suitably secured to the key 13 which is provided with a turning handle 14. The attachment of the wire to the key can be readily effected by passing the end of the wire through a transverse hole in the key. In this form the key is rotatable in a pair of bearings 15 soldered or otherwise suitably secured to the cap 3. The cap at its center is provided with a depression 16 to accommodate the coil of wire wound on the key.

Fig. 3 shows a slight modification wherein a pair of wires 12^a are secured to the piston, each extending through an opening in the cap 3 and secured to the winding shaft 13^a. In this form the turning handle 14^a instead of being integral with the winding shaft is pivoted thereto at 17 so that when not in use it hangs at the side of the receptacle.

Fig. 4 shows another modification where the winding shaft 13^b is on the lower head of the receptacle and the semi-solid or pasty substance is forced into a central discharge tube 7^a projecting centrally through the piston 9^a and through the upper head of the

receptacle, where it is provided with the usual closure 8. The admission orifice 6^a in the lower end of the discharge tube 7^a is of smaller size than the interior diameter of said tube. The piston is shown connected to the winding shaft or key by means of a pair of metal ribs or flat wires 12^b. The handle or key 14^b is detachable from the winding shaft 13^b by a threaded joint 20.

In Fig. 5 the cap or closure 3^a is provided with the central discharge orifice 6^a and with a comparatively large discharge spout 7^b centrally arranged on said cap. The winding shaft or key 13^c passes through the spout 7^b and the wire 12 is wound thereon inside of said spout. In this form, the key and coil of wire thereon are practically within the receptacle and are concealed.

With all forms of the device the receptacle is filled with grease, soap or other pasty or semi-solid substance through the end which is closed by the removable cap 3. While being filled the piston is in the opposite end of the receptacle, and the ends of the wire are held at one side of the open end of the receptacle. When filled the ends of the wire or wires are passed through the hole or holes in the cap 3, and the cap is then screwed, crimped or otherwise secured onto the body of the receptacle. When a plurality of wires or bands are used the cap with the ends of the wire extending therethrough must first be turned backwardly to the same extent as it is necessary to turn it forwardly in order to screw the same onto the body of the receptacle, in order that the wires may first be twisted in a reverse direction so that when the cap is fully in place the wires will be practically without twist. A slight amount of twist, however, will do no particular harm. Inasmuch as it requires not to exceed one turn to screw the cap fully to place it is not difficult to determine the amount of reverse twist to be given to the wires. The ends of the wire or wires are then passed through the holes in the winding shaft and the latter is given several turns to sharply bend the wire and hold the latter from accidentally pulling out of the winding shaft. The receptacles are filled in this manner and hermetically closed or sealed at the factory, and can then be conveyed to the place of use. To supply the contained substance to the machine bearings, or for other purpose it is merely necessary to unscrew the small closure 8 and then slightly rotate the winding shaft or key 13, so as to wind thereon the wire or wires and draw the piston or follower toward the discharge orifice. This forces the semi-solid or pasty substance from said orifice and through the discharge spout. Any desired quantity of material can be discharged in this manner from the receptacle and when the required quantity is discharged the small closure 8 is again put in place. As a consequence, lubricants in the form of grease can be supplied to machine bearings in a convenient and tidy manner and so as to practically prevent dirt or grit entering the grease cup with the grease. When other substances than grease are filled into the receptacle such substances can be discharged therefrom in any desired quantities and in a manner to prevent soiling the hands of the user. The contents of the receptacle are always contained in a tightly closed casing and therefore do not accumulate dirt, nor, as for instance with the case of butter, will they absorb odors from substances which are stored in the same room or vicinity.

The device described is adapted particularly for containing and discharging substances like lubricating greases and soaps which are semi-solid rather than pasty, some being substantially of the same hardness as tallow, and therefore offer considerable resistance to being discharged from the receptacle. It is therefore necessary that the piston or follower be either of such thickness or provided with guides so as to have a long bearing longitudinally in the tube, in order to prevent such piston or follower from tipping or tilting and therefore binding in the tube. This is necessary because the substances are quite immobile and pressures therefore do not distribute themselves quickly and uniformly. For the same reason a centrally located discharge orifice as shown in Figs. 4 and 5 is desirable as it enables the pressure on the piston to remain more nearly uniform. A plurality of wires is also of value for the same reason.

It will be observed that the discharge orifice 6 or 6^a, as the case may be, is of smaller diameter than the interior diameter of the discharge spout or tube 7 or 7^a. This is for the purpose of forcing into the discharge spout or tube a stream of the substance of less diameter than the interior of said spout or tube, and therefore prevent the frictional contact of such stream of substance with the walls of the spout or tube.

The drawings show either a single wire, a plurality of wires, or a flat wire or band as a connector between the winding shaft or key and the piston or follower. It will be understood, however, that a cord, a band of any kind, or in fact any flexible connector capable of being wound upon a shaft or key will answer the purpose equally as well as a wire.

Various modifications can be made in the construction, arrangement, size and shape of the parts without departing from the spirit of the invention.

What I claim is:

1. A device of the character described comprising a receptacle for the desired substance provided centrally at one end with a

discharge orifice, a piston or follower in said receptacle arranged when moved to force the substance out of the discharge orifice, and winding means for moving said piston or follower.

2. A device of the character described comprising a receptacle for the desired substance provided centrally at one end with a discharge orifice, a piston or follower in said receptacle arranged when moved to force the substance out of the discharge orifice, a rotary shaft, and connections therefrom to said piston or follower and arranged when the shaft is rotated to move said piston or follower toward the discharge orifice.

3. A device of the character described comprising a receptacle for the desired substance provided at one end with a central discharge orifice, a delivery spout or tube leading from said orifice, a piston or follower in said receptacle arranged when moved to force the substance out of the discharge orifice, a winding shaft or key located in said spout or tube, and a flexible connector secured to the piston and adapted to be wound on said shaft or key.

4. A device of the character described comprising a receptacle for the desired substance provided at one end with a discharge orifice, a delivery spout or tube leading from said discharge orifice and of greater internal diameter than said orifice, a piston or follower in said receptacle arranged when moved to force the substance out of the discharge orifice, and winding means for moving said piston or follower.

5. A device of the character described comprising a receptacle for the desired substance provided at one end with a discharge orifice, a delivery spout or tube leading from said discharge orifice and being threaded externally and of greater internal diameter than said orifice, a piston or follower in said receptacle having a long bearing therein and arranged when moved to force the substance out of the discharge orifice, and winding means for moving said piston or follower.

6. A device of the character described comprising a receptacle for the desired substance provided at one end with a discharge orifice, a delivery spout or tube leading from said discharge orifice and of greater internal diameter than said orifice, a piston or follower in said receptacle arranged when moved to force the substance out of the discharge orifice and having a long bearing in said receptacle, a concealed winding shaft or key, and a flexible connector connecting said shaft or key and said piston or follower.

JAMES F. CRAVEN.

Witnesses:
F. W. WINTER,
JAS. L. WELDON.