L. H. BALLOU.

DISPENSING RECEPTACLE FOR PASTE, &c.

APPLICATION FILED OCT. 2, 1911.

1,154,163. Patented Sept. 21, 1915.

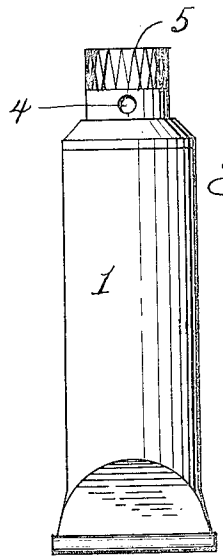


Fig. 1.

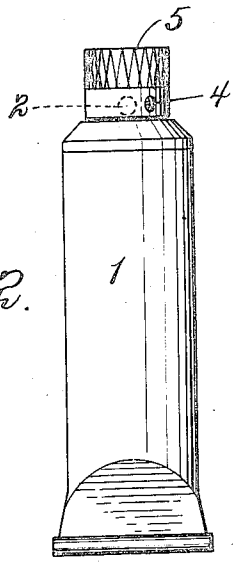
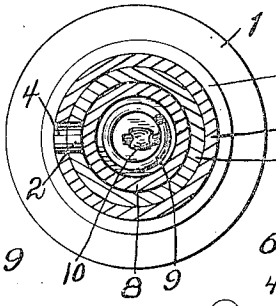


Fig. 2.

Fig. 5.



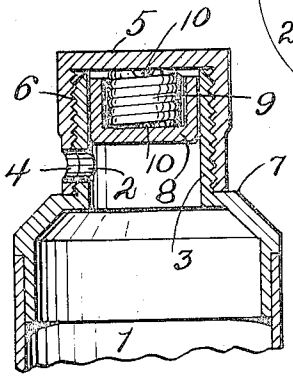


Fig. 3.

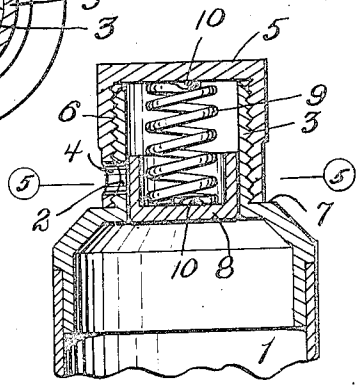


Fig. 4.

WITNESSES

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DISPENSING-RECEPTACLE FOR PASTE, &c.

1,154,163. Specification of Letters Patent. Patented Sept. 21, 1915.

Application filed October 2, 1911. Serial No. 652,385.

To all whom it may concern:

Be it known that I, LEON H. BALLOU, a citizen of the United States, residing at Lockport, in the county of Niagara and State of New York, have invented new and useful Improvements in Dispensing-Receptacles for Paste, &c., of which the following is a specification.

The most important object of the present invention is to provide a compressible tube, or other suitable receptacle, of the kind commonly employed for tooth pastes, powders, paints, etc., having means whereby its contents may be most effectively preserved against deterioration and most readily and economically dispensed. In accordance with this object I have provided, as clearly shown in the accompanying drawings illustrating what is now regarded to be the most desirable form of the invention, a compressible receptacle having a recoiling cut-off for the outlet, whereby when the receptacle is compressed, the pressure thereby exerted on its contents will be communicated by the latter to the cut-off member and will cause said member to move and uncover the outlet, and thereby permit discharge of the contents through said outlet; and when said pressure on the contents ceases, the cut-off member will automatically return to its former position and close the outlet and force the contents from the vicinity of the outlet back into the receptacle. I shall describe this particular form of the invention in detail, but it is to be understood that it is regarded to be the best and most highly desirable and an important form and application of the present invention and that changes may be made in the construction and correlation of parts, and the invention in its broad aspects may be variously embodied without departing from the spirit of the invention as defined by the broader claims hereof.

In the drawings, wherein like numerals of reference designate corresponding parts throughout the several views:—Figure 1 is a view in side elevation of the invention ready for use. Fig. 2 is a view in side elevation of the invention ready for shipment. Fig. 3 is a vertical sectional view enlarged of a fragment of the invention showing the cut-off member in one position. Fig. 4 is a similar view showing the cut-off member in another position and Fig. 5 is a transverse sectional view taken on line 5—5 of Fig. 4.

The numeral 1 designates a preferably cylindrical body portion of the receptacle, having its lower flattened end closed, as shown. This body portion is readily compressible, the same being formed of flexible material, such as sheet lead or the like, as is customary. The opposite end of the body portion is provided with a relatively rigid contracted neck 3, which extends centrally and axially of the body portion. This contracted neck 3 is provided near and spaced from its lower end with a lateral discharge opening 2, adapted to register with an opening 4 formed through an outer cap 5. The cap 5 has screw-threaded engagement with the contracted neck 5, or otherwise suitably mounted thereon. When the cap, which constitutes a closure for the open end of the neck 3, is screwed down tight upon the shoulder 7 of the neck-portion, or otherwise caused to assume the position shown best in Fig. 3, the openings 2 and 4 register so that when pressure is applied to the contents of the receptacle, the contents will be dispensed through said openings. It is thus seen that means are provided to prevent the accidental rotation of the cap 5, when the openings 2 and 4 are in registration, for discharging the contents of the receptacle or tube. When the receptacle is ready for shipment, the cap 5 is turned slightly as illustrated in Fig. 2 to offset the openings 2 and 4 and thereby prevent discharge of the contents due to pressure being accidentally exerted upon the contents as from careless handling, dropping, or otherwise.

Within the bore of the contracted neck is slidably arranged a cut-off plunger or valve 8 which is preferably cup-shaped. This plunger is movable axially in the neck across the outlet opening 2 thereof with its closed end arranged lowermost, and fits sufficiently snugly within the bore of the neck to prevent any appreciable amount of the contents from finding its way between the plunger and neck. It is provided with a coil-spring 9 for holding it yieldably in its outlet-closing position and for returning it to said position when pressure on the contents of the receptacle ceases. This coil-spring 9 is secured at its upper and lower ends to the interior faces of the cap 5 and cut-off plunger or valve 8, respectively, preferably by means of solder 10.

The spring 9 by extending into the cup-shaped valve or plunger 8, is protected from coming into contact with the material held

within the casing or tube. As is well known, when the material, such as tooth paste or the like, is discharged from the receptacle or tube in any considerable amount, the lower end of the tube is flattened and generally folded or rolled up, whereby the material therein completely fills the remaining part of the tube. By this means, the plunger or valve 8 is generally subjected to sufficient pressure from the contents of the tube, to permanently retain the spring 9 slightly compressed, whereby the same exerts a permanent yielding pressure upon the cap 5 to prevent its accidental rotation, when the openings 2 and 4 are out of registration. By virtue of the central axial location of the neck 3, the tube may be readily filled by removing the cap 5, spring 9, and plunger or valve 8.

In use, the receptacle is received from shipment with the neck-opening 2 and cap-opening 4 not alined, as illustrated in Fig. 2. The cap 5 is first turned to aline said openings with each other. The receptacle will then appear as illustrated in Fig. 1. When pressure is applied to the body 1, the contents thereof will be forced into the neck 3, forcing ahead the spring cut-off plunger or valve 8 to the position illustrated in Fig. 3. The outlet openings 2 and 4 are now uncovered by the said plunger and the flow of the contents unobstructed. When a sufficient quantity of the contents has been dispensed, pressure is discontinued on the body and the cut-off plunger immediately recoils automatically, the spring returning it to its normal position closing the outlet ports 2 and 4 as illustrated in Fig. 4.

The spring 9 is of sufficient strength to move the contents bodily back into the receptacle body 1 when external pressure on the body is discontinued, yet, when such pressure is applied the spring must give way, under the pressure of the contents.

It will be noted that the cut-off plunger or valve is free to turn with the screw cap 5, while the latter is being adjusted to the position illustrated in Fig. 2, or being entirely removed, as well as applied to the neck 3. It will also be observed that the lower portion of the cut-off plunger is in a lower plane than the lower edge of the cap, thereby permitting a considerable range of movement of the cap on the neck before the outlet ports are exposed.

One of the important advantages of the invention lies in the fact that, when it is desired to dispense some of the contents of the receptacle, the cap does not have to be touched, all that is necessary being to apply external pressure to the contents by squeezing the body portion of the receptacle. Again, as soon as this pressure ceases, the cut-off plunger automatically recoils to close the outlet and prevent loss of the contents and deterioration due to exposure to the atmosphere.

Having now described my invention what I believe to be new and desire to secure by Letters Patent, is:—

1. In a receptacle of the character described, the combination with a flexible tube adapted to be readily collapsed by external pressure to compress material therein, of a substantially rigid neck connected with one end of the flexible tube and provided with a lateral discharge opening, a cup-shaped valve fitting snugly within the neck to prevent the passage of material between the same and the inner wall of the neck and longitudinally movably mounted therein to cover and uncover the lateral discharge opening and having its closed end arranged lowermost, an outer cap rotatably mounted upon the neck with a lateral opening to be moved into and out of registration with the first named discharge opening, and a coil spring disposed between the cap and cup-shaped valve and extending into the cup-shaped valve to be prevented from coming into contact with material held in the tube.

2. In a receptacle of the character described, the combination with a flexible tube, of a substantially rigid neck connected with one end of the tube and provided with an exterior shoulder and a lateral discharge opening, an outer cap having screw threaded engagement with the neck and provided with a lateral discharge opening which is so located that it is brought into registration with the first named discharge opening when said cap is screwed down to have clamping engagement with the exterior shoulder, a cup-shaped valve fitting snugly within the neck and slidable therein to cover and uncover the first named discharge opening, said valve being arranged with its closed end innermost, and a coil spring disposed between and having its ends attached to the heads of the cap and cup-shaped valve.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LEON H. BALLOU.

Witnesses:
ROY H. ERNEST,
HENRY H. MAYNE.