Aug. 2, 1949. A. R. HUTCHASON 2,477,875

DISPENSING CONTAINER FOR COLLAPSIBLE TUBES WITH AXIALLY MOVABLE, ROTATIVELY ACTUATED, FOLLOWER-TYPE EXTRUDER

Filed June 4, 1946

Fig. 1.

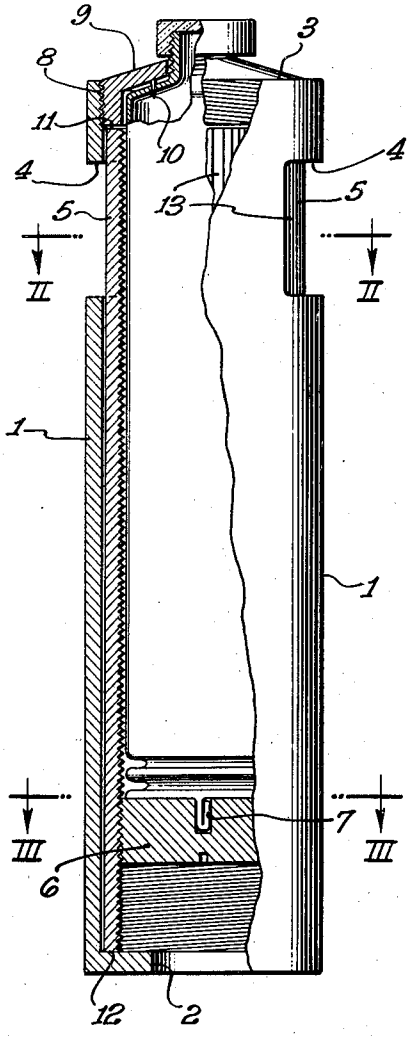


Fig. 2.

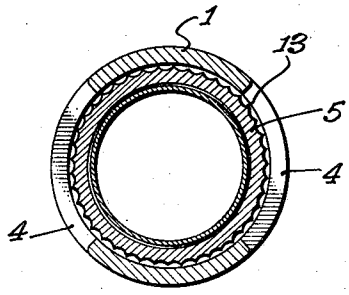
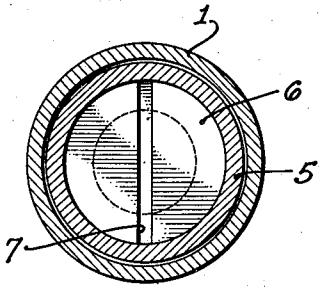


Fig. 3.



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DISPENSING CONTAINER FOR COLLAPSIBLE TUBE WITH AXIALLY MOVABLE, ROTATIVELY ACTUATED, FOLLOWER-TYPE EXTRUDER

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4 Claims. (Cl. 222—95)

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This invention relates generally to dispensing apparatus and more particularly to a case and dispenser adapted to encompass, surround, and contain a collapsible tubular container of a type well known in the art which generally contains relatively soft, flowable or pasty material, and which is adapted to controllably dispense said soft, flowable or pasty material upon actuation of said dispensing apparatus.

A collapsible tubular container might be made of any suitable material. A type well known in the art is made of soft metal such as is commonly used for tooth paste tubes, shaving cream tubes, oil color tubes, tubes containing pharmaceutical or therapeutic preparations, medicinal preparations, cosmetics, and the like. My invention is particularly well adapted to dispense tooth paste, shaving cream, oil colors, pharmaceutical preparations, therapeutic preparations, medicinal preparations, cosmetics, and, in fact, any and all relatively soft, flowable materials adapted to be contained in such collapsible tubular containers.

In the past, one of the principal disadvantages inherent in using a collapsible tubular container containing a soft, flowable or pasty material was the fact that all of the soft, flowable or pasty material contained in said collapsible tubular container could not be readily ejected or removed from the tubular container, and, in fact, most such containers, when finally thrown away, still contained a considerable portion of the material contained therein. However, in the apparatus of my invention, the collapsible tubular container is completely telescoped or collapsed and practically all of the soft, flowable, or pasty material contained therein is ejected or removed from the container by my dispensing apparatus. Thus the waste of the commodity contained in the collapsible tubular container is eliminated.

A second major disadvantage in using collapsible tubular containers for soft, flowable or pasty materials was that there formerly existed no method available for dispensing a measured quantity of the commodity contained in a collapsible tubular container, whereas in the apparatus of my invention a precisely measured quantity of the soft, flowable, or pasty material carried by the container can be dispensed at will.

In the past, another disadvantage in using collapsible tubular containers for soft, flowable, or pasty materials was the fact that the collapsible tube was generally squeezed or rolled up in the course of discharging or dispensing the material, and often times the tube wall of the collapsible tube was ruptured and the contents would therefore leak through said ruptured portion. In the apparatus of my invention, the collapsible tubular container is supported during the collapsing or telescoping operation and collapses or telescopes evenly along the supporting wall and the tube wall has no tendency to rupture at any point.

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Another disadvantage in using collapsible tubular containers for soft, flowable, or pasty materials was the fact that such collapsible tubular containers could not readily be carried or moved around at will since they were readily collapsible. For example, if a tubular container containing tooth paste were carried in a grip, suitcase, or other piece of luggage, the container might readily be crushed, thus causing the walls of the container to rupture and the soft, flowable or pasty material to flow through said ruptured portion. In the apparatus of my present invention, however, the case or container which completely surrounds, encompasses and contains the collapsible tubular containers is of non-frangible, non-collapsible composition and can readily be transported and relatively roughly handled without damage thereto.

The apparatus of my invention is well adapted to being supported in an upside down position in a bracket fixed to a wall or other primary support, thus making a convenient, fixed dispensing mechanism adapted to dispense at each dispensing operation a measured quantity of a soft, flowable, or pasty material, and which might, for example, be situated on a bathroom or kitchen wall, or any other suitable primary support.

The device of my invention is also well adapted to cooperate with a coin controlled mechanism of a type well known in the art to comprise a coin controlled dispensing mechanism adapted to dispense at each dispensing operation a measured quantity of any desired soft, flowable, or pasty material.

It is of great advantage to be able to predetermine the amount of soft, flowable, or pasty material dispensed at each dispensing operation, because such predetermined amount can be set at the optimum amount for whatever purpose the soft, flowable, or pasty material is to be used, whereas in the past an unmeasured quantity was generally squeezed from the collapsible tubular container which quite often might be more than necessary for the particular purpose desired, thus wasting a quantity of soft, flowable or pasty material.

With the above points in mind, it is an object of this invention to provide a dispensing ap-

paratus adapted to encompass, contain, and surround a collapsible tubular container for soft, flowable or pasty materials and adapted, in its last dispensing operation, to discharge or eject practically all of the soft, flowable or pasty material in said collapsible tubular container and leave practically none of the soft, flowable or pasty material within the tubular container.

Another object of the invention is to provide a dispenser and case for collapsible tubular containers of relatively soft, flowable, or pasty materials which is adapted to surround, encase, and encompass a collapsible tubular container for soft, flowable, or pasty material and which is adapted for each dispensing operation thereof to discharge a measured quantity or any desired portion thereof of the soft, flowable, or pasty material contained therein.

Another object of the invention is to provide a dispenser and case for collapsible tubular containers of relatively soft, flowable, or pasty materials and adapted to surround, encompass, and contain a collapsible tubular container containing a soft, flowable, or pasty material and adapted to collapse or telescope said tubular container without rupturing the walls thereof.

Another object of the invention is to provide a dispenser and case for collapsible tubular containers of relatively soft, flowable, or pasty materials adapted to contain, encompass, and surround a collapsible tubular container for soft, flowable, or pasty materials, said case being made of non-frangible, non-collapsible material, thus protecting the soft, collapsible, tubular container contained therein from crushing and damage resulting from rough usage.

Another object of the invention is to provide a dispenser and case for collapsible tubular containers of relatively soft, flowable, or pasty materials adapted to surround, encompass, and contain a collapsible tubular container which contains a soft, flowable, or pasty material which will be of light, simple, cheap, and foolproof construction. For example, the parts may be made of plastic or any other suitable material.

The invention consists of the dispenser and case in the parts and combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a front view of my invention, partly in section.

Fig. 2 is a top sectional view of my invention taken along line II—II of Fig. 1.

Fig. 3 is a top sectional view of my invention taken along line III—III of Fig. 1.

An exemplary form of my device, used for illustrative purposes only, generally comprises an outer housing having cylindrical side walls provided with a closed bottom and an open top and a pair of opposing ports adjacent the top of said outer housing, said outer housing having a cylindrical, internally threaded member rotatably mounted within said outer housing, an exteriorly threaded follower threadably engaged within said internally threaded, cylindrical member, the upper open end of said housing being internally threaded, and an exteriorly threaded retainer threadably engaged within the upper end of said housing. Said retainer is provided with inwardly extending prongs for gripping the upper end of a tubular container, which is to be contained within the dispenser, for preventing rotation of the tubular container with respect to the retainer. The upper surface of the follower has a groove therein adapted to receive the bottom end portion of the tubular container which is to be contained within the dispensing apparatus. The ports in the side of the outer housing make it possible to manually grasp the outer surface of said internally threaded cylindrical member and rotate the same with respect to the outer housing. This rotation of the internally threaded member with respect to the outer housing causes a relative rotation between said internally threaded cylindrical member and said follower also since said follower is fixed with respect to the outer housing through the medium of the groove in the upper surface of the follower, the lower end of the tubular container which is fixed in said groove, and the upper end of the tubular container which is fixed to the retainer by means of the prongs, and the retainer which is engaged with the outer housing. Thus, when the internally threaded, cylindrical member is rotated with respect to the outer housing, it is also rotated with respect to the follower, but since the follower and the internally threaded member are threadably engaged, and since the internally threaded, cylindrical member is abutted at each end thereof and cannot move longitudinally, the follower moves upwardly, thus collapsing and telescoping the tubular container contained within the dispenser, thus discharging a measured quantity of soft, flowable, or pasty material contained within the tubular container corresponding to the amount of rotation of the internally threaded cylindrical member with respect to the outer housing.

The outer surface of the internally threaded, cylindrical member is fluted to facilitate manual gripping thereof.

More specifically, an outer housing having cylindrical side walls 1 is provided with a closed bottom at 2, an open top at 3, and opposed ports 4 in the cylindrical side walls. A cylindrical, internally threaded member 5, open at the bottom and top thereof, is rotatably mounted within the outer housing 1 and rotatably supported upon the closed bottom 2 of said outer housing. A cylindrical, exteriorly threaded follower 6 is threadably engaged within the interiorly threaded member 5 at the bottom of such member, as viewed in Fig. 1. The upper surface of the exteriorly threaded follower has a groove 7 therein adapted to engage the lower end of a tubular container which is to be contained in the dispensing apparatus. The upper end of the cylindrical walls 1 of the outer housing are internally threaded at 8.

An exteriorly threaded, cylindrical retainer 9 is removably and threadably engaged with the interiorly threaded portion 8 of the cylindrical walls 1 of the outer housing. The retainer 9 is provided with prongs 10 adapted to engage and grip the upper end, as viewed in Fig. 1, of the tubular container which is to be contained in the dispensing apparatus. The lower end of said retainer 9 abuts the upper end of the internally threaded cylindrical member 5 at 11, as viewed in Fig. 1, and the lower end of the internally threaded, cylindrical member 5 abuts the closed bottom 2 of the outer housing at 12, thus preventing any longitudinal movement of said internally threaded, cylindrical member 5. The exterior surface of the internally threaded, cylindrical member 5 is fluted at 13 to facilitate manual gripping thereof so as to rotate said internally threaded, cylindrical member 5 with respect to the outer housing.

In the operation of the device, the retainer 9 is disengaged from the threads 8 on the interior of

the cylindrical walls 1 of the outer housing, thus opening the upper end of the dispensing apparatus. A collapsible tubular container of the proper size is then inserted into the internally threaded, cylindrical member 5 with the lower, transverse sealing portion of said collapsible tubular container, which is at the bottom end of said tubular container, placed in the groove 7 of the follower 6. The retainer 9 is then threadably engaged with the threads 8 on the interior of the upper end of the cylindrical walls 1 of the outer housing, and the prongs 10 securely engage the upper end of the tubular container, thus preventing rotation of the tubular container with respect to the retainer 9, the outer housing 1, and the follower 6. Then the cap of the tubular container is removed and the soft, flowable, or pasty material contained in said tubular container may be dispensed at will by gripping the fluted portion 13 of the internally threaded, cylindrical member 5 with one hand and gripping the cylindrical walls 1 of the outer housing with the other hand and relatively rotating these two elements.

It should be noted that when the tube of pasty material contained in the open ended cylinder 5 has been compressed by means of the follower 6 having advanced along the inner threaded surface of the open ended cylinder 5 toward the upper end thereof until no further material is contained in the tubular container, the retainer 9 may unscrewed and the exhausted tubular container removed from the open ended cylinder 5. The entire open ended cylinder 5 may also be removed from within the outer housing 1, and the follower 6 may be unscrewed the short distance necessary to disengage it from the upper end of the cylinder 5, and it may then be reinserted at the bottom end of the cylinder 5 and screwed a short distance thereinto. Then the cylinder 5 may have a tube of pasty material inserted thereinto and may be replaced within the outer housing 1. This permits the rapid recharging of the apparatus of this invention without the necessity of screwing the follower 6 all the way from the upper end of the inner cylinder 5 to the bottom thereof before being able to place a tube of pasty material therein.

The amount of soft, flowable, or pasty material discharged will depend upon the angle through which relative rotation of the internally threaded, cylindrical, inner member 5 and the cylindrical walls of the outer housing 1 takes place. The bottom 2 may be ported to permit insertion of a screw driver or other implement for engagement with a slot formed in the bottom of follower 6.

While I have described one particular form of my invention, it will be apparent that various changes may be made in the form of the apparatus herein described and illustrated without departing from the spirit of the invention as defined in the annexed claims. It will be understood that although the groove 7 is shown in the drawing as a transverse groove, such groove may be in the form of a horseshoe or incomplete circle into which the end of the collapsible tube may be readily inserted. Moreover, such tube end receiving grooves may be formed on both sides of follower 6 so that the inner member 5 is reversible; the fluting 13 may be at both ends of member 5 and more than one port 4 may be provided. The end cap 9 may carry a hingedly connected closure or cap capable of releasably closing the end of the collapsible tube. It will be evident that a suitably shaped nozzle element may be attached to the neck of the tube in the device so as to permit the contents of the tube to be discharged in regulated amounts into nasal, rectal, or other body cavities. In coin operated machines the device may be mounted within a housing and a predetermined amount of rotation imparted to the member 5 by means of a rack or other driven member energized by a coin controlled motor drive. Hand creams, lotions, and other materials may be thus readily dispensed in predetermined quantity.

I claim:

1. A dispenser and case for tubular containers of relatively soft, flowable materials comprising: an outer housing having cylindrical side walls provided with a closed bottom and an open top and a pair of opposing ports in said side walls adjacent said open top; a cylindrical, internally threaded member, open at the bottom and top thereof, within said housing, said member rotatably resting on the bottom of said housing with a portion of its surface exposed through said ports in said housing; a follower threadably engaged within said member, said follower including means for grasping the end of a tubular container inserted into said cylindrical, internally threaded member; and a retainer removably attached to the open top of said housing, said retainer including means for holding the top of a tubular container from rotation relative thereto, the ports in the housing providing means for grasping the cylindrical member to impart rotation thereto within the housing, the internal threads of the cylindrical member translating rotation of the follower into axial movement of the follower.

2. A dispenser and case for tubular containers of relatively soft, flowable materials comprising: an outer cylindrical housing provided with a closed bottom and an open top and a port in said cylindrical housing; a cylindrical, internally threaded member, open at the bottom and top thereof, rotatably mounted within said housing with a portion of said member exposed through said port in said housing; a follower threadably engaged within said member, said follower including means for grasping the end of a tubular container inserted into said cylindrical, internally threaded member; and a retainer removably attached to the open top of said housing, said retainer including means for holding the top of a tubular container from rotation relative thereto, the port in the housing providing means for grasping the cylindrical member to impart rotation thereto within the housing, the internal threads of the cylindrical member translating rotation of the member into axial movement of the follower.

3. A dispenser and case for tubular, collapsible containers of relatively soft, flowable materials, comprising: a cylindrical outer housing; a cylindrical internally threaded, open ended member, rotatably mounted within said housing; a top retainer and stop removably attached to the top of the housing; stop means carried by the bottom of the housing to limit axial movement of the inner rotatable member within the housing; a follower threadably engaged within the inner member, said follower including means for grasping the lower end of a collapsible container inserted into said inner cylindrical member, while the upper end of such container is held against the inner surface of the top retainer; and port means in the housing for grasping the cylindrical member to impart rotation thereto within the housing, the internal threads of the cylindrical member trans-

lating such rotation into axial movement of the follower.

4. A dispenser of the character stated in claim 3, wherein the outer surface of the inner cylindrical member is ridged to facilitate grasping and rotation thereof.

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