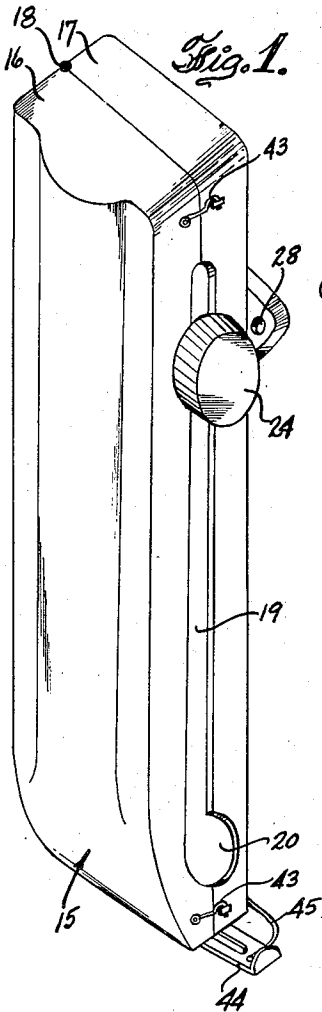
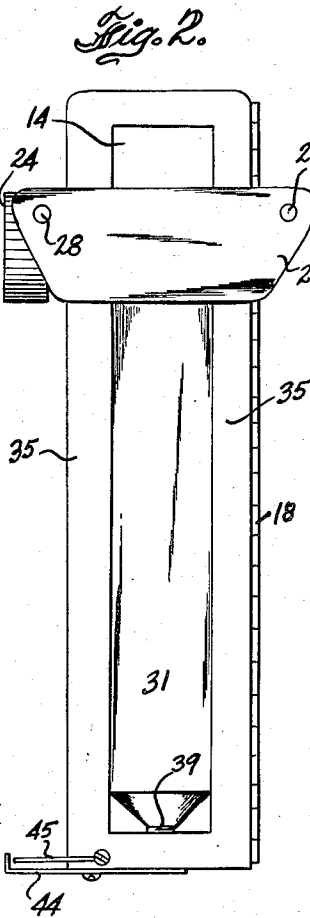
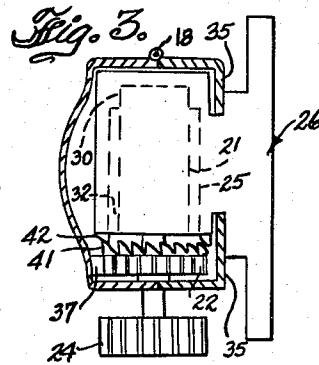
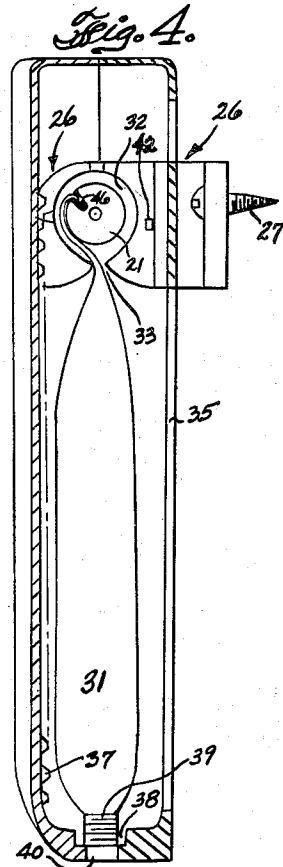
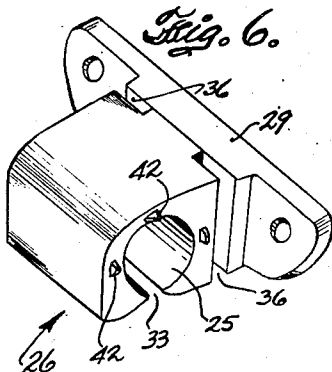
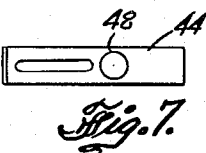
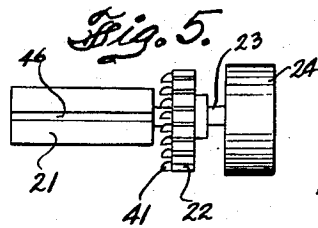


March 2, 1954

R. PERLMUTTER
COLLAPSIBLE TUBE DISPENSING DEVICE HAVING
A RIGIDLY MOUNTED WIND-UP MECHANISM
Filed Jan. 16, 1952

2,670,875



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2,670,875

COLLAPSIBLE TUBE DISPENSING DEVICE
HAVING A RIGIDLY MOUNTED WIND-UP
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3 Claims. (Cl. 222-100)

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The present invention relates to a device for dispensing the contents of collapsible tubes in which such products as tooth paste, shaving cream and other paste preparations are packaged, and more particularly to such a device which can be mounted on the wall of home and hotel bathrooms, or in barber shops, beauty parlors, Pullman washrooms and the like.

An object of this invention is to provide a novel and improved dispensing device of the character mentioned, affording a tube flattening and wind-up mechanism which is rigidly mounted and hence made easy to operate and positive in action. Devices heretofore relied entirely on the wind-up shaft to flatten the tube and such shaft was in many instances difficult to turn because of its lateral movement towards the fixed discharge mouth of the tube, and such shaft was called upon to do the "squeezing" of the tube. In my present device, the wind-up shaft pulls the tube rearwise through a flattening means while it winds up the flattened portion of the tube. Because of such novel structure and new mode of operation, my present device is very efficient in accomplishing the purpose for which it is designed.

Another object hereof is to provide a dispensing device of the type described, affording a casing into which a filled tube is easy to mount and from which it is easily removed when the contents of such tube is exhausted.

Another object of this invention is to provide a dispensing device of the nature set forth, of novel and improved construction, in which the outer casing is not subjected to any strain occasioned by the application of force used to flatten and wind-up the tube, and hence can be thin-walled, light, and much cheaper to make.

A further object hereof is to provide a novel and improved dispensing device for the purpose mentioned, which is adaptable for all sizes of tubes.

Further objects and advantages will become apparent as this disclosure proceeds.

In the accompanying drawings forming part of this specification, similar characters of reference indicate corresponding parts in all the views.

Fig. 1 is a perspective view of a dispensing device embodying the teachings of this invention.

Fig. 2 is a rear view of Fig. 1.

Fig. 3 is a section taken at lines 3-3 in Fig. 1.

Fig. 4 is a section taken at lines 4-4 in Fig. 3.

Fig. 5 is a longitudinal view of the wind-up shaft.

Fig. 6 is a perspective view of the frame-piece included in the illustrated embodiment; such frame-piece presenting a slot through which the tube is drawn to flatten same prior to the rolling up of the flattened portion of the tube on the

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wind-up shaft which is supported for axial rotary movement on said frame-piece. In this preferred embodiment, such frame-piece which is secured to a wall, is of a form to serve as a sort of housing for the said wind-up shaft.

Fig. 7 is a plan view of a cut-off blade included in the preferred embodiment illustrated herein.

In the drawings, the numeral 15 designates generally an oblong casing which in use position is lengthwise along the vertical. Such casing is comprised of a front box member 16 and a rear box member 17, hinged together at 18 along one side of the casing they make. At the other side of the casing, along most of its length, the meeting edges of the box members have a lengthwise cut-out so that when the casing is shut as in Fig. 1, the lengthwise slot 19 is formed. This slot is communicative with an enlarged opening 20 in the side wall portion of the rear box member 17. This opening is of a size to permit the tube wind-up member 21 and the gear 22 to be inserted into and withdrawn from the casing 15, as part of the unitary structure securely carried on the shaft 23, adapted to be turned by its knob 24.

It may here be noted that upon assembly of the device, the wind-up member 21 is within the housing 25 offered by the frame-piece 26, while the part of the shaft 23 exposed between the gear 22 and the knob 24, is positioned through said slot 19 in the casing wall.

The frame-piece 26 is adapted for attachment to a wall by means of screws 27 through the holes 28 in bracket element 29. Said frame piece also serves to removably hold an end of the wind-up member 21, for axial rotation in the reduced socket portion 30; the housing bore 25 being larger than the diameter of the wind-up member 21, to provide space 32 for winding up the flattened portion of the collapsible tube 31. In said frame-piece there is a slot 33 communicative with the bore 25. This slot serves as a die through which the tube 31 is drawn. Sidewise entrance into said slot 33 between the elements 34 forming said die, is possible.

The back wall of the rear box member 17, has a lengthwise slot offering the flanges 35 which are slidably positioned in the vertical slots 36 respectively. Hence, said frame-piece 26 also serves as a track for movement of the casing along the vertical. A rack 37 is mounted on the inner surface of the front box member 16, and is in constant engagement with the gear 22 when the casing 15 is shut and the device is set into use condition. When the front box member 16 is opened as a door, it of course carries the rack 37 away from said gear 22. The bottom wall of the casing 15, is provided with an interior counterbore to serve as a socket 38 for the tube's nozzle 39, and a discharge orifice 40

for the stuff forced from within the tube 31. Such socket and orifice are formed by meeting notches in the casing members 16 and 17. Also to be noted, is the face ratchet 41 on the gear 22; the teeth of which face ratchet engage the teeth 42 fixed on the frame-piece 26. Hooks 43 serve as latch means to keep the casing 15 shut. The numeral 44 indicates a slidably mounted cut-off blade which is finger-operated and same may be spring-loaded as by a spring 45.

Let us consider the device assembled as in Fig. 1 and Fig. 3, but minus the tube 31. Also let us disregard for the moment, the presence of the face gear 41. When door 16 is opened, the casing 15 would fall to its lowest position on the frame piece 26. The casing is so dimensioned that in its lowest position, the distance from the socket 38 to the periphery of the wind-up roller 32, is slightly greater than the longest length of tube 31 to be accommodated.

The usual closure cap on the nozzle 39 of the tube 31, is discarded. The tube is held inverted. The knob 24 is turned until the radial slot 46 is in register with the die slot 33, whereupon the tube's closure edging 47 is set through said die slot and upwardly into the radial slot 46 of the wind-up roller 21. The casing 15 is then raised by hand until the nozzle 39 of the tube rests in socket 38, whereupon the door 16 is shut. The gear 22 now engages the rack 37 and the casing may be locked by the latch means 43. The cut-off blade 44, in rest position, serves to close opening 40.

Now, to eject stuff from the tube 31 out through the discharge opening 40, the blade 44 is slid for hole 48 thereof to come in register with said discharge opening, and then knob 24 is turned a bit clock-wise to draw the tube upwardly through the flattening die slot 33, and wind up the so flattened portion of the tube, onto the wind-up roller 21. Upon return of the blade to its normal rest position, the stuff ejected is cut off and the opening 40 closed again. Such movement of the knob 24 and incidentally of the shaft 23 and all it carries, will cause the casing 15 to rise a bit due to action of the gear 22 which is in engagement with the rack 37. The pitch of these should conform to wind-up roller take-up. When the tube contents is spent, the casing 15 will be in such position that its opening 20 will be concentric with the shaft 23.

Upon opening the door 16 at this time, the wind-up shaft 23 together with the wound-up spent tube 31 on the roller 21, may be removed from the casing 15 by movement longitudinally of said shaft, through the opening 20. The wound-up tube is then removed from the roller 21. The open casing 15 is then held raised so that the opening 20 is in register with the housing bore 25 in the frame-piece 26, whereupon the unit of Fig. 5 may again be mounted and the operation of placing a new tube 31 repeated.

When the tube 31 is comparatively large so that its weight might cause an unwinding from off the roller 21, and to avoid the casing's falling due to its own weight when its door is closed, it is advisable to include the face gear teeth 41 for engagement with the teeth 42 on the frame-piece 26, to avoid such from happening. The springiness of the casing material is relied on to yield to permit the passing of such engageable teeth 41 and 42, when the knob 24 is turned.

When small-sized tubes 31 are used, the stiffness of the convolutions of the completely flattened tube portion wound on the roller 21, would be sufficient to avoid their unwinding.

It is advisable that the face gear whose teeth are denoted by the numeral 41, be a ratchet gear, so that the knob 24 can be turned only to wind up.

Although item 31 is commonly called a tube, its structure is that of a container, one end of which is closed and flattened and its opposite end has a discharge orifice 39.

This invention is capable of numerous forms and various applications without departing from the essential features herein disclosed. It is therefore intended and desired that the embodiment shown herein be deemed illustrative and not restrictive and that the patent shall cover all patentable novelty herein set forth; reference being had to the following claims rather than to the specific description herein to indicate the scope of this invention.

I claim:

1. In a dispensing device of the character described, the combination of a collapsible container at least partly filled with a paste preparation; said container being flattened at one end and provided with a discharge orifice at its opposite end, a frame adapted to be secured onto a wall, means fixed on the frame presenting an elongated opening adapted to flatten the container when said container is drawn through said elongated opening, a wind-up means rotatably mounted on the frame for rotation about an axis adjacent said opening, provided with means to engage the flattened end of the container; the flattened end of said container being positioned through said elongated opening and held by said engagement means, a casing having a discharge opening, slidably mounted on the frame along a line perpendicular to the axis of rotation of the wind-up means and housing the collapsible container and all the mentioned means; the discharge orifice of the container being communicative with the discharge opening of said casing, a gear and a shaft on and rotating with the wind-up means; said shaft extending exterior the casing and a rack secured to the casing along the line of movement of said casing and in engagement with said gear whereby on rotation of the wind-up means relative to the frame, paste from within the said container will be ejected from said discharge orifice and thence through the discharge opening of the casing.

2. A dispensing device as defined in claim 1, including means on the frame to hold the casing in any set position while the wind-up means is at rest; said holding means including at least one tooth in detachable engagement with any of the movable components and resilient means for maintaining such engagement.

3. A dispensing device as defined in claim 2, wherein the casing is of a material having resilient quality and serves as the resilient means.

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