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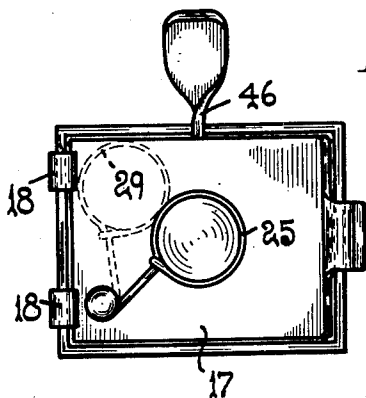
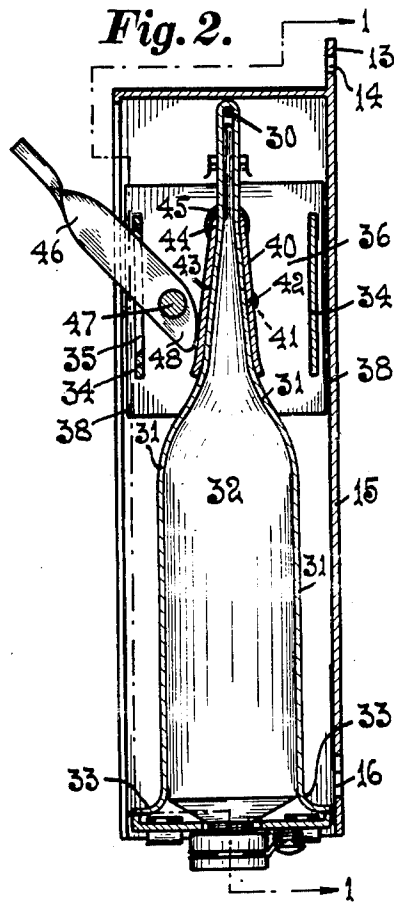
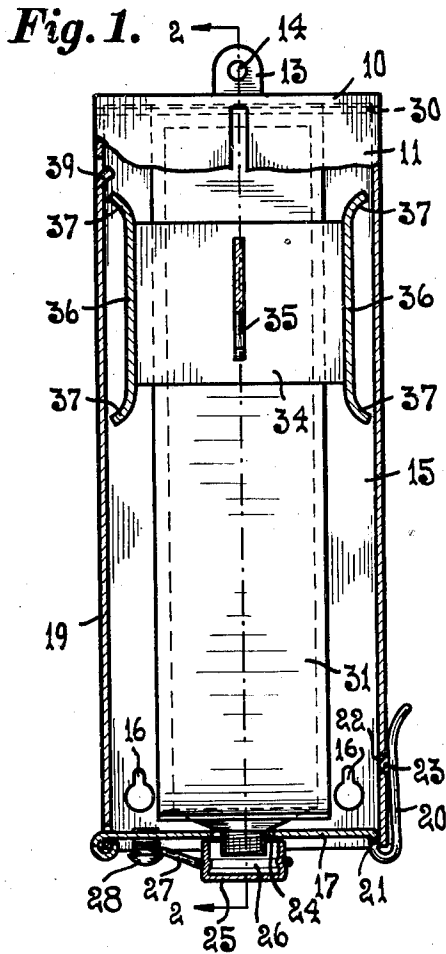
J. H. HARNISH

1,979,105

DISPENSER

Filed Feb. 6, 1934

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 4.

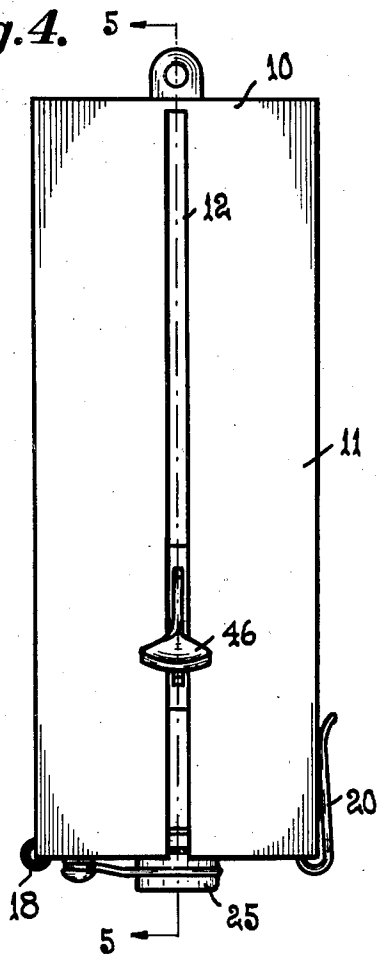


Fig. 5.

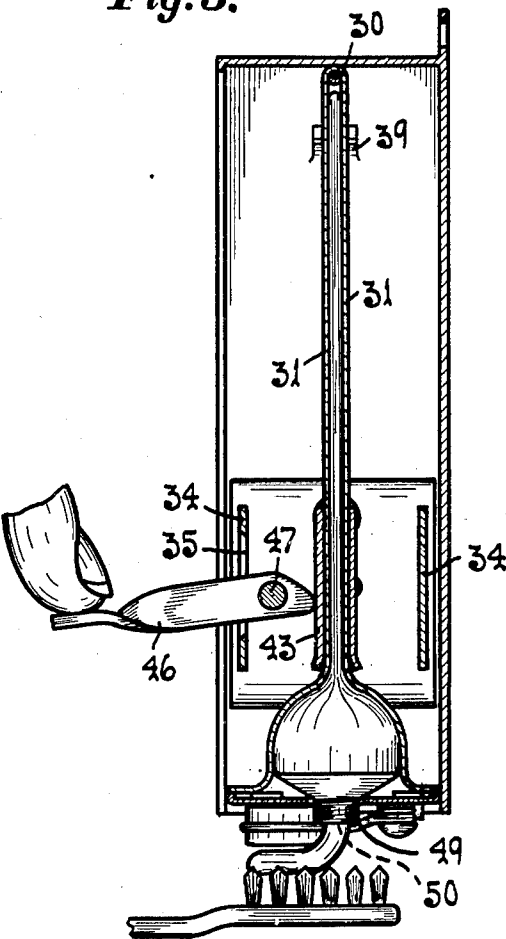
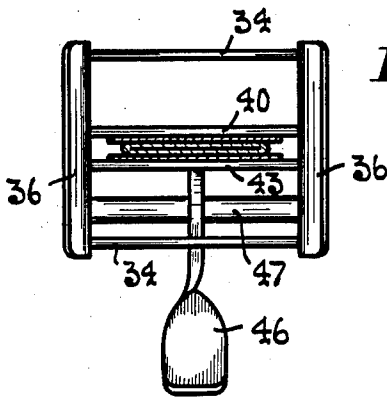


Fig. 6.



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UNITED STATES PATENT OFFICE

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DISPENSER

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5 Claims. (Cl. 221-60)

This invention relates to dispensing devices, and has for an object to provide means for causing the contents of flexible containers to readily exude therefrom as required, said containers being such as or similar to the soft metal tubes in which tooth paste, paints, shaving creams and the like are conventionally merchandised.

Another object of the invention is to provide a holder and dispenser so constructed that the entire contents of a tube may be squeezed therefrom by applying a flattening pressure to the side walls of the tube as distinguished from the "rolling" action usually applied to the tubes by devices of the prior art; the latter tending to wrinkle and rupture the tubes before the material is completely ejected with the result that the contents become solidified and spoiled.

A further object of the invention is to provide a tube holder and collapsor which is adapted to accommodate all conventional sizes and shapes of flexible tubes within a practical range; which may be positioned against a wall or other convenient place of ready access; which is sanitary in use; of ornate appearance; economical in construction; and susceptible of accommodating advertisements of manufacturers of paste and the like imprinted upon its exterior surface.

Another object of the invention is to provide a combined device which supports and holds the collapsible tube in a position suitable for the delivery of the material directly upon an up-turned tooth brush and for effectively ejecting a desired amount of the material by the mere depression of a lever, the distance the lever is depressed determining the quantity of material ejected, and to accomplish these objects by a relatively simple structure operable by simple and natural movement of the hand.

Other and further objects and advantages of the invention will be understood from the following detailed description of the preferred embodiment thereof, reference being had to the accompanying drawings, in which:

Figure 1 is a front elevation of the invention, certain parts thereof being broken away and shown in section; the view being taken substantially on the dotted line 1-1 of Figure 2.

Figure 2 is a sectional view taken at right angles to Figure 1 on the dotted line 2-2 thereof.

Figure 3 is a bottom plan view of the device.

Figure 4 is a front elevation of the dispenser.

Figure 5 is a sectional view similar to Figure 2, but with the squeezing device in a lowered and applied position, and

Figure 6 is a detail top plan view of the squeezing device, showing a flattened tube therein.

Referring now to the drawings, 10 designates a guide frame or housing which may be rectangular in cross section, of sufficient length to accommodate a collapsible tube and the like, and which has smooth inner walls.

The front wall 11 of the housing 10 is provided with a longitudinal slot 12 which may extend throughout the entire length of the wall 11, and through which a later described operating lever extends.

At the top of the housing 11 a tang 13 is provided having a suitable aperture 14 for the reception of a screw or the like for the purpose of securing the device upon an object, such as a wall. The rear wall 15 of the housing 11 is provided at its lower end with screw or detent receiving apertures 16 for stabilizing the device in a selected position and preventing transverse and outward swinging movements thereof.

The bottom 17 is hingedly secured, as at 18, to a side wall 19 of the housing 11 and is adapted to swing downwardly at desired times for loading the device with a tube and is retained in a normally closed position by means of a resilient hook detent 20 which preferably is integral with the bottom member 17, the latter being preferably formed of brass having an adequate degree of resiliency. The bottom 17 is provided with a down-turned flange 21 from which the hook extends and is curved over the bottom edge of the opposite side wall 19, the said wall being provided with a notch or aperture 22 for receiving a detent 23 carried by the outer portion of the hook 20 which is upturned to lie against the wall for maintaining the bottom 17 in a normal closed position. The closure 17 is susceptible of being readily swung open by springing the hook 20 outwardly of the wall and releasing the detent 23 from the notch 22.

As thus described it will be understood that the bottom member or closure 17 is normally received within the lower end of the housing and is held thereby from lateral movements with respect thereto.

The bottom 17 is provided with a centrally positioned aperture 24, through which the neck of a later mentioned collapsible tube extends. The bottom 17 is provided with a covering for the mouth of the tube which includes a dished cap 25 provided with an interiorly arranged cushioning media 26 which is preferably formed of cork or the like. The cork 26 is normally held against the mouth of the tube by means of a spring arm

27 secured to the cap and fastened to the cover 17 by any suitable means such as the screw 28 which also provides a pivotal mounting for the spring arm 27 so that the cap 25 may be removed from a central position covering the mouth of the tube to a position, such as that shown by the dotted lines 29 in Figure 3 and the full lines in Figure 5, for permitting the contents of a tube to exude upon a tooth brush or the like, the pressure being applied by the means now to be described.

A pin 30 is disposed transversely through the guide housing 11 adjacent the top thereof and supports a pair of oppositely disposed protecting shields 31 which are suspended from the pin 30 and are preferably of integral construction. Obviously the protecting shields 31 could extend through a slot formed through the top of the device in which case the pin 30 could be omitted.

The shields 31 are of thin brass and extremely flexible, and are adapted to conform to the shape of the collapsible tube 32, the lower ends 33 of the shields being outwardly turned, as best shown in Figure 2, and providing abutting flanges against the front and rear walls of the housing.

A squeezing device is provided which preferably includes a rectangular frame adapted to snugly fit within the housing for longitudinal sliding movement. The frame comprises oppositely disposed plates 34, one of which is provided with a vertical slot 35.

The plates 34 are secured to guide plates 36 forming the sides of the frame, and the upper and lower edges of the plates 36 are provided with outwardly turned flanges 37 which bear against the side walls 19 of the housing and are guided in their longitudinal movements thereby, the side edges of the plates bearing against the front and rear walls of the housing as best shown in Figure 2.

A stop 39 is struck inwardly from one side 19 so that the adjacent flange 37 of a guide plate 36 may be hooked thereover to hold the squeezing device near the top of the housing while loading the latter with a tube, and may be released therefrom by pressing inwardly upon the side wall 19.

Oppositely disposed squeezing finger plates 40 and 43 are movably carried by the squeezing device, and are positioned against the outer sides of the protecting shields 31.

The squeezing finger plate 40 is provided at its lateral edges and intermediate its upper and lower ends with stub axles 41 which are received in apertures 42 formed through the guide plates 36, and it will be noted that the finger plate 40 is pivoted centrally with respect to its vertical length. The oppositely disposed squeezing finger plate 43 is hingedly secured to the plates 36 by means of its stub axles 44 received in apertures 45 formed through the plates 36, the latter mentioned stub axles 44 being positioned closely adjacent the upper edge of the finger plate 43.

It will be noted that as thus described the finger plate 43 is adapted to have swinging movements toward the finger plate 40 and the latter is adapted to have pivotal reciprocating movement.

An operating lever 46 extends through the slot 35 of the squeezing device and the slot 12 of the front wall of the housing 11, and is pivotally carried by means of a rod 47 which, as best shown in Figure 6, extends between the guide plates 36 of the frame of the squeezing device. The lever 46 is provided with a cam-shaped inner end 48 which is eccentrically disposed with respect to the

pivotal mounting 47 of the lever and adapted to bear against the squeezing finger 43.

In operation the side wall of a collapsible tube 32 is usually oval or elliptical in cross section and converges or tapers into a closed straight or flat edge of the inner end of the tube. The discharge or outer end of the tube has a neck 49 provided with an orifice 50 through which the contents of the tube may be expelled, it being understood that said contents are of a semi-plastic consistency which prevents the material from freely flowing from the tube when the latter is in an inverted position in the holder but permits the expelling of the contents under pressure as later described.

It will be understood that when the tube 32 is placed in inverted position within the device, the upper flat end of the tube is initially positioned between the squeezing finger plates 40 and 43, and at that time the squeezing device is disposed adjacent the top of the housing. The lever 46, when in the position shown in Figure 2, is pressed downwardly to move the finger plate 43 toward the finger 40 with a swinging action to squeeze the contents of the tube downwardly and outwardly thereof. The stub axles 44 of the finger plate 43 are pivotally held in the bearing openings 45 substantially in the longitudinal central plane of the tube 32 so that the upper end of the plate 43 bears against the flattened side of the tube 32 and the lower free edge thereof bears against the outstanding advanced portion of the tube wall with the material therewithin. The stub axles 41 of the other plate 40 are held in the bearing openings 42 on an axis approaching the said medial plane of the tube 32 to prevent bodily movement of the plate 40 under the opposed pressure of the plate 43 but to admit the swinging of the plate 40 to conform to the flattening deformation of the tube proportionately to the pressure exerted against the upper and lower end portions of the plate 40. It will be noted that by means of the pivotal mounting of the squeezing finger plates 40 and 43, and the relation thereof, the one with respect to the other, the finger plate 40 will compensate for any unevenness initially contained within the contour of the tube. The downward movement of the lever causes its cam-end 48 to move inwardly toward the position shown in Figure 5 and swing the finger plate 43 to a position in flat engagement with the side wall of the tube and toward the medial plane of the housing. As the operation is repeated, the squeezing device, being supported on the tube 32, will automatically ride down by gravity to the lower end of the tube by the successive releasing and depression of the lever 46 and the material will be gradually, in small quantities, expelled until the tube is substantially exhausted.

During operation at intermittent intervals for obtaining the contents from the tube, the cover cap 25 is sprung downwardly from the mouth or neck 49 of the tube and swung to one side out of the way. When not in use the cap 25 is replaced to prevent dehydration and exuding of the contents of the tube.

The conventional cover cap for the tube 32, which is threadedly attached thereto, is discarded after placing the tube within the dispenser.

I do not wish to be restricted to the size, form and proportions of the various parts, and, obviously, changes could be made in the construction herein described without departing from the spirit of the invention, it being only necessary

that such changes fall within the scope of the appended claims.

What is claimed is:—

1. A dispenser for collapsible tubes, comprising
 - 5 a housing adapted to receive a collapsible tube in inverted position, a gravity actuated slide mounted in the housing about the tube and having opposed pressure plates hinged in the slide for engaging the opposite sides of the tube, and
 - 10 a compression lever pivotally mounted on the slide and projecting outwardly therefrom, said housing having a vertical slot therein for the reception of the slide lever therethrough.
 2. A dispenser for collapsible tubes and the like
 - 15 comprising a housing for receiving a collapsible tube in inverted position, a slide mounted in the housing for engaging the tube and adapted to be supported by the tube, a pair of plates mounted in the slide with one plate pivotally mounted
 - 20 intermediate its ends for engagement against one side of the tube and with the opposite plate mounted at its upper end for engagement against the opposite side of the tube, and a cam lever carried by the slide in line with said second plate
 - 25 and adapted for operation to swing said second plate toward the first plate and compress the tube between the plates, said housing having a slot therein for the reception of said lever.
 3. A holder and collapsing device for collapsible tubes comprising a housing for the reception
 - 30 of a tube in inverted position, a gravity actuated slide mounted in the housing about the tube, a plate pivoted intermediately in the slide for engagement against one side of the tube, a second plate pivoted at its upper end in the slide for engagement against the opposite sides of the tube, an operating lever pivotally mounted in the slide in line with the free end portion of said second plate and adapted to be operated for
 - 40 moving the second plate toward the first plate and flattening the interposed portion of the tube, said housing having a longitudinal slot therein through which said operating lever projects, and a pair of flexible shields suspended in the upper
 - 45 end of the housing for engagement against the opposite sides of the tube and against the inner sides of said plates.

4. A combined support and squeezing device for collapsible tubes, comprising a housing for receiving a tube in inverted position, a closure hinged upon the lower end of the housing and having an opening therein for receiving the neck of the tube, means for releasably holding the closure in closed position to support the tube, a cap for closing the neck of the tube, a spring arm pivoted to said closure and engaging the cap to support the same for adjustment into and out of engagement with the neck of the tube, a pair of shields suspended within the upper end of the housing for engagement against the opposite sides of the tube, a gravity actuated slide mounted in the tube, a pair of pressure plates carried by the slide for engagement against the outer sides of said shields, and an operating lever carried by the slide and projecting through the side of the housing and having a cam at its inner end for engaging the adjacent plate to compress the plates together against the shield to flatten said tube.

5. A combined holder and tube contents dispenser, comprising a housing for the reception of a collapsible tube in inverted position, a gravity actuated slide mounted in the housing for engagement about the tube and having outturned guide flanges at opposite ends to engage the side walls of the housing, a hook projecting inwardly from one of said side walls of the housing in the path of the adjacent flange and adapted to yieldably receive said flange thereover for holding the slide in raised position during the interchange of tubes, said side walls of the housing being yieldable to admit of compression of one side wall to displace the flange from said hook and release the slide, a plate pivotally mounted in the slide for engaging one side of the tube, a second plate hingedly mounted at its upper end on said slide for engaging the opposite side of the tube, and an operating lever mounted on the slide and projecting through the housing and having a cam on its inner end for engaging said second plate to swing the latter toward the first plate and collapse the interposed portion of the tube.

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