

Jan. 31, 1939.

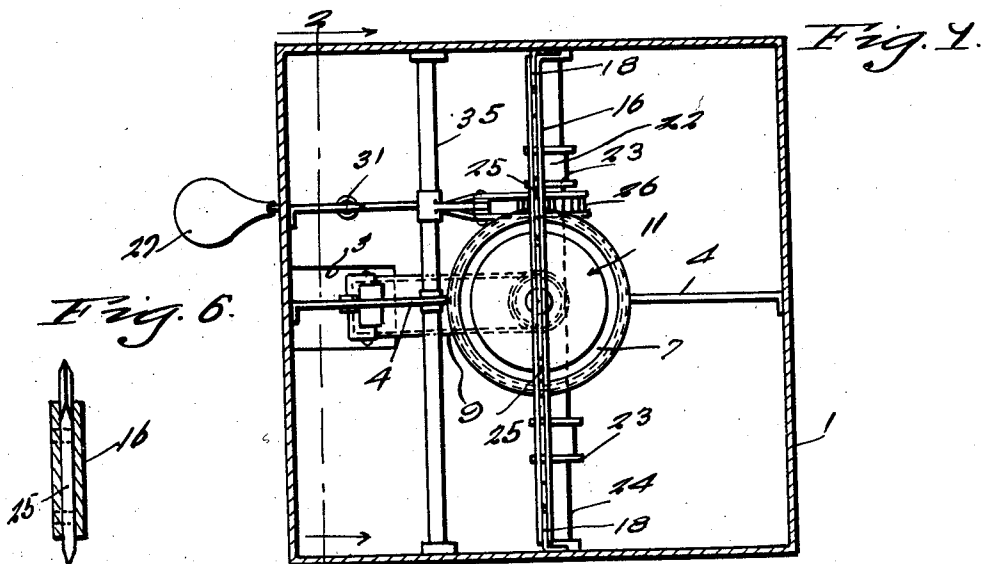
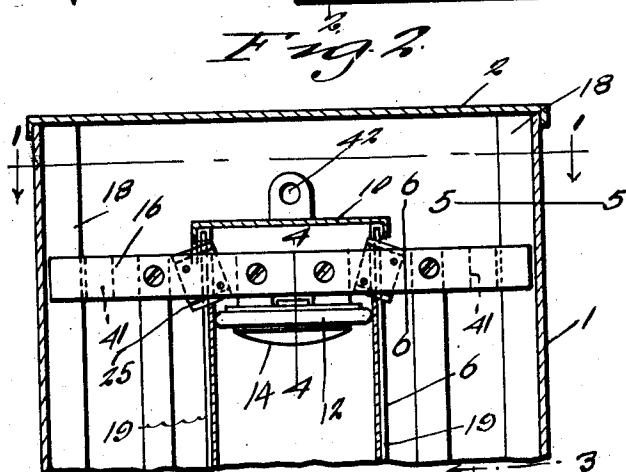
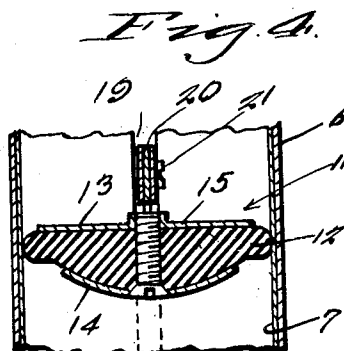
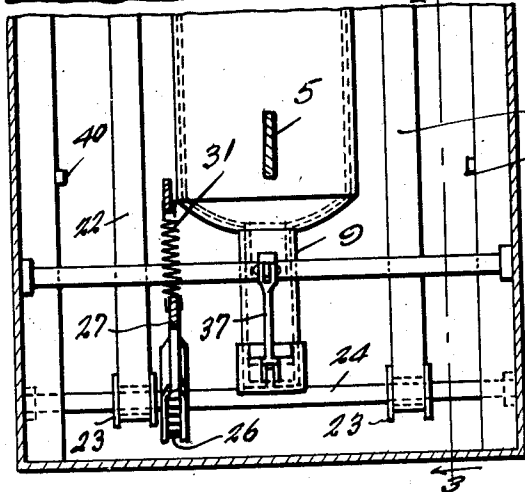
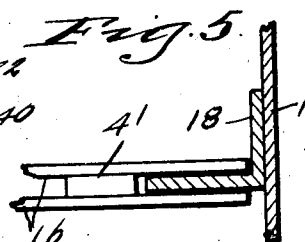
D. G. PUDERBAUGH

2,145,779

DISPENSER

Filed Aug. 26, 1938

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 3.

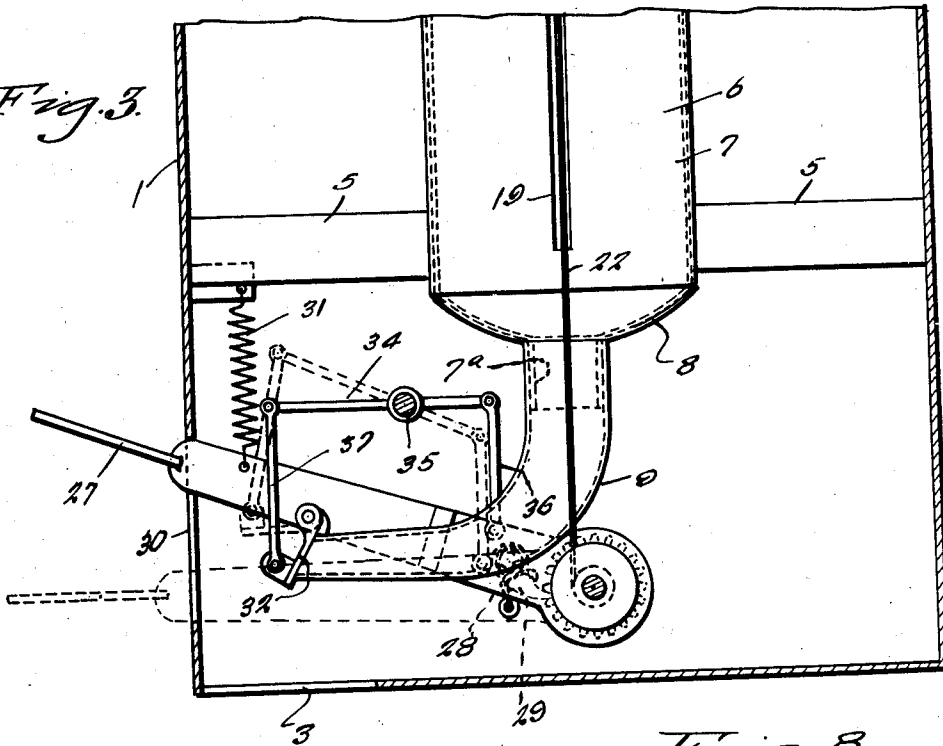


Fig. 7.

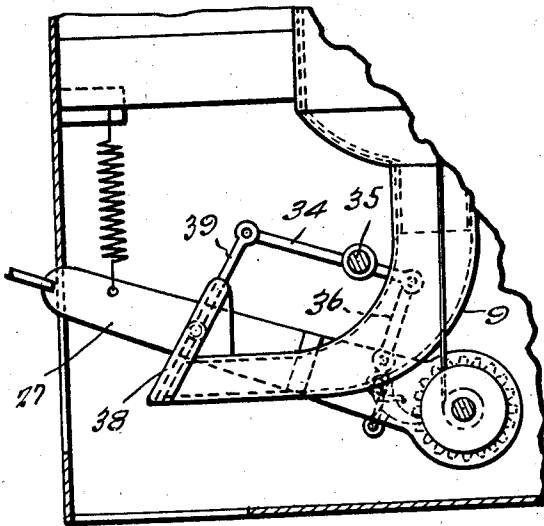
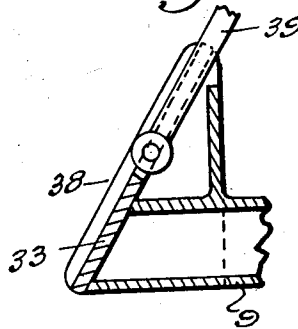


Fig. 8.



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UNITED STATES PATENT OFFICE

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DISPENSER

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Application August 26, 1938, Serial No. 226,996

6 Claims. (Cl. 221-78)

This invention relates to dispensers and more particularly to dispensers for toothpaste, shaving cream, toilet soap cream, and other products in collapsible tubes.

5 An object of the present invention is to provide a device of this character for use as a convenience to the travelling public, as for example for use in the washrooms of hotels and similar places as well as in the washrooms of private homes.

10 Further in accordance with the present invention a dispenser of the character above mentioned embodies a novel construction and arrangement through the medium of which substantially all of the contents of a collapsible tube or container may be ejected in a convenient and sanitary manner.

15 A further object of the invention is to provide a dispenser of the aforementioned character comprising a construction and arrangement which is such that the desired quantity of the contents may be ejected from the collapsible tube or container directly onto the hand, thereby eliminating waste.

25 The invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings wherein:—

30 Figure 1 is a horizontal sectional view taken substantially on the line 1—1 of Figure 2.

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1.

Figures 3 to 6 inclusive are sectional views taken substantially on the lines 3—3, 4—4, 5—5, and 6—6, respectively, of Figure 2.

35 Figure 7 is a fragmentary enlarged elevational view illustrating a slightly modified form of the invention, and

40 Figure 8 is an enlarged detail sectional view of a slide closure forming part of the form of the invention shown in Figure 7.

In accordance with the present invention the dispenser comprises a metallic casing 1 equipped with brackets or other suitable means through the medium of which the dispenser may be mounted on a wall or similar support. For the casing 1 there is provided a removable lid 2.

50 The bottom of the casing adjacent the front end of the casing is provided with a discharge opening 3 through which the contents of a collapsible tube pass onto the hand or brush of the user.

Vertically and fixedly mounted within the casing 1 through the medium of upper and lower brackets 4, 5, is an elongated substantially cy-

lindrical hopper 6 adapted to accommodate therein a collapsible tube 7 of toothpaste, shaving cream, or other material.

5 The bottom of the tube, or hopper 6, is provided as at 8 to conform to the neck-equipped end of the collapsible tube 7, and from said bottom 8 has extending an integral curved, tapering discharge spout 9, the larger end of which receives the neck 7a of the collapsible tube 7 as suggested by broken lines in Figure 3.

10 In accordance with the present invention the seal at one end of the collapsible tube 7 is removed and the wall of the tube at said end is folded over the wall of the hopper 6 at the upper open end of the hopper as shown in Figure 2.

15 After the collapsible tube has been thus positioned within the hopper 6 there is placed on the upper end of the hopper a flanged closure 10, which as is clear from a study of Figure 2, serves to hold said folded-over edge portion of the collapsible tube 7 engaged with the upper end edge of the hopper 6 and consequently to retain the collapsible tube 7 within the hopper 6 against movement vertically downwardly therein.

25 For forcing the contents of the tube 7 therefrom and through the discharge spout 9 there is provided for movement vertically within the tube 7 a follower, or plunger 11.

30 As best shown in Figure 4 the plunger 11 comprises a disk-like body member 12 of rubber or other suitable material confined between a pair of clamping plates 13, 14, and held at the desired point of radial expansion by a proper relative adjustment of the plates 13 and 14; it being noted, in that connection, that the plates 13 and 14 are connected by an adjusting screw 15 that has the head thereof countersunk in the plate 14 and the shank thereof threadedly engaged with a boss provided therefor on the plate 13, the body member 12 of the plunger being provided with a suitable opening to accommodate the screw as shown.

40 For actuating the plunger, or follower 11 to cause the latter, step-by-step, to move downwardly within the tube 7 for ejecting, successively, predetermined quantities of the tube contents, there is provided a cross head 16 which consists of two strips of wood or other suitable material secured together through the medium of screws or other fastening elements 17.

50 The crosshead 16 is guided in its vertical movement through the medium of vertical guide elements 18 provided therefor internally of the casing 1 and at opposite sides of the casing.

55 The strips forming the crosshead 16 accom-

modate between the ends thereof the guide members 18 as clearly shown in Figure 5, and said crosshead, in turn is accommodated in vertical slots 19 provided therefor in diametrically opposite sides of the cylinder, or hopper 6.

The plunger 11 is connected to the crosshead 16 to move therewith through the medium of an attaching flange 20 provided on the plate 13 and accommodated between the strips forming the crosshead. Said flange 20 is secured to the crosshead 16 and between the strips thereof through the medium of screws or other suitable fastening elements 21.

Downward movement of the crosshead 16 and plunger 11 is effected by the winding of flat springs 22 onto flanged drums 23. Drums 23 are mounted on a shaft 24 suitably journaled in the lower portion of the casing 4. At one end thereof the spring strips 22 are secured to the crosshead and between the strips thereof through the medium of the aforementioned screws 17. It will thus be seen that as the strips 22 wind on the drums 23 crosshead 16, together with plunger 11 will move downwardly thus forcing some of the contents of the tube 7 through the discharge spout 9.

In order that the collapsible tube 7 will not interfere with the downward movement of crosshead 16 and associated follower, or plunger 11 said crosshead 16 has secured between the strips thereof through the medium of screws or other suitable fastening elements double-edge knives, or cutting blades 25. The blades 25, as clearly shown in Figures 2 and 6, are reversible and are mounted on the crosshead at a suitable angle so as to split the tube 7 longitudinally as the crosshead moves downwardly. Obviously the crosshead 16 will follow in the slits formed by the cutting action of the knives, or blades 25, and thus the tube 7 will not interfere with the smooth operation of the device.

For winding the spring ribbons or strips 22 on the drums 23 in a step-by-step manner thus effecting discharge of the contents of the collapsible tube 7 in predetermined bulks, there is mounted on the shaft 24 to rotate therewith a ratchet wheel 26. A manually operable forked finger lever 27 has the forked end thereof engaged with the shaft 24 in a manner to rotate about the shaft 24 as an axis; and at the forked end thereof the lever 27 is provided with a pivoted dog 28 biased into engagement with the teeth of the ratchet wheel 26 through the medium of a readily removable spring 29. The knob-equipped, or free end of the lever 27 works through a suitable slot 30 provided therefor in the front wall of the casing 1 and said end of the lever is normally urged upwardly through the medium of a suitably anchored spring 31 arranged within the casing 1 and suitably connected with the lever as shown in Figure 3. It will thus be seen that upon each downward movement of the lever 27 against the action of spring 31 piston, or follower 11 will move downwardly within the collapsible tube 7 forcing some of the contents of the tube therefrom and through the discharge neck 9 to pass from the neck through the opening 3 onto the hand or brush of the user.

For the outlet end of the discharge spout 9 there is provided, in the form of the invention shown in Figure 3, a hinged closure 32 while in the form of the invention shown in Figures 7 and 8 the closure is in the form of a slide closure 33.

Also, in each form of the invention, and for

operating the spout closure, there is provided a rocker arm 34 that is rockable on a rod 35 suitably mounted within the casing 1. One end of the rocker arm 34 is pivotally connected with the lever 27 through the medium of a link 36. In the form of the invention shown in Figure 3 the other end of the rocker arm 34 is connected with the hinged closure 32 through the medium of a link 37.

It will thus be seen that as the lever 27 is pushed downwardly against the action of spring 31 for operating the follower, or plunger 11 to discharge a predetermined amount of the contents of the tube 7 arm 34 will rock to the dotted line position shown in Figure 3 thus causing the closure 32 to swing upwardly to the dotted line position shown in said figure and thereby permit some of the contents of the tube 7 to discharge from the spout 9 to fall through the opening 3 onto the hand or brush of the user.

In the form of the invention shown in Figures 7 and 8 the spout 9 is provided at the discharge end thereof with opposed guides 38 between which operates the slide closure 33. Slide closure 33 is pivotally connected with the rocker arm 34 through the medium of a link 39.

It will thus be seen that in the form of the invention shown in Figure 7 when the lever 27 is lowered or depressed to effect the discharge of some of the contents of the tube 7 movement of the rocker arm 34 resulting from the depressing of the lever 27 is transmitted to the slide 33 causing the latter to move upwardly between the guides 38 for uncovering the discharge end of the spout 9 permitting certain of the contents to pass from the spout.

Downward movement of the crosshead 16 and associated plunger, or follower 11 is limited through the medium of suitable stops 40 provided on the guides 18 and arranged in the path of spacer blocks 41 disposed between the strips forming the crosshead 16 and inwardly from the ends of the strips as will be clear from a study of Figures 2 and 5.

It will also be noted that the cap 10 is provided with an apertured lug 42 to facilitate the removal of the cap when desired.

After the contents of a tube 7 have been completely discharged therefrom the cover 2 of casing 1 is removed after which the cap 10 is removed from the hopper or tube 6. Next the spring 29 is disengaged from the dog 28 and the operator then by placing the hand downwardly inside the container 1 and engaging the crosshead 16 may readily elevate the crosshead and plunger 11 to the extent required for the placing of a filled collapsible tube within the tube or hopper 6. After the collapsible tube has thus been placed within the hopper 6 the knives 25 are forced downwardly, splitting the tube 7 and to a point below the upper end of the tube 6 after which cap 10 is replaced.

The parts are now in position and the lever 27 of the dispenser then operated as desired for dispensing the contents of the tube in a manner hereinbefore explained.

It is thought that a clear understanding of the construction, operation, utility and advantages of a dispenser of this character will be had without a more detailed description; it being understood that in actual practice, if desired, the hopper 6 may be so located relative to the bottom of the casing 1 as to permit use of the device without recourse to the spout 9. Also by changing the position of the slide closure, as for ex-

ample by arranging the same relative to the opening in the bottom of the casing 1, the contents of the collapsible tube may be cut clean almost immediately upon the discharge of such contents from the tube; these arrangements serving (1) to cheapen the construction of the device, and (2) to afford better operation where the contents of the tube is in the form of a stiff paste.

Having thus described the invention what is claimed as new is:—

1. In a dispenser of the character described, a relatively fixed discharged spout adapted to accommodate within one end thereof the discharge neck of a collapsible tube, means for supporting a collapsible tube substantially perpendicularly relative to the discharge spout, a pair of opposed guides, a crosshead movable vertically between said guides and engaging therewith, a plunger mounted on the crosshead and adapted to be inserted within the collapsible tube at the sealed end of the latter after the seal of said tube has been removed, knives carried by the crosshead for splitting the tube longitudinally incidental to a downward movement of the crosshead and in advance of said crosshead, and manually operable means connected with the crosshead for causing the latter together with the plunger to move downwardly relative to the collapsible tube for forcing the contents of the latter therefrom and through said discharge spout.

2. A dispenser comprising a relatively fixed discharge spout provided at the discharge end with a closure, and equipped at the opposite end to receive the discharge neck of a container, an ejector for disposition within a container to force the contents therefrom and through said spout, a rotary shaft disposed transversely of the discharge spout and in proximity thereto, an operating lever connected with said shaft to rotate on the shaft as a pivot, a ratchet wheel fixed on the shaft to rotate therewith, a spring-biased dog carried by said lever and engaging the ratchet teeth for transmitting movement of the lever to the shaft for rotating the latter step-by-step, devices windable on said shaft and connected with said ejector for forcing the ejector longitudinally of the container incidental to a winding of said elements on said shaft as said shaft rotates step-by-step, and means operatively connecting the closure with said lever whereby movement of the lever is transmitted to the closure for moving the closure to open position simultaneously with a partial rotation of said shaft resulting from a movement of said lever in one direction.

3. A dispenser comprising a casing, a discharge spout mounted in said casing and connectible with a container for receiving the contents thereof, means for holding the upper end of the container, a pair of opposed guides mounted vertically in said casing, a crosshead slidable between the guides, a follower on said crosshead movable therewith longitudinally of the container for forcing the contents of the container through said discharge spout, drums rotatably mounted in said casing and spring-ribbons windable on the drums and connected at one end with the crosshead for

causing movement of the crosshead incidental to a winding of said ribbons on the drums.

4. A dispenser comprising a casing, an elongated hopper mounted in said casing and provided at the lower end thereof with a discharge spout, said hopper adapted to accommodate therein a container disposed to discharge the contents thereof into said discharge spout, said hopper being provided with opposed longitudinal slots, opposed guide members mounted in the casing, a crosshead operable in said slots and slidable between said guides, a follower on said crosshead and movable therewith interiorly of the container for forcing the contents of the latter therefrom, knives on the crosshead and working in said slots for slitting the container in advance of the crosshead and incidental to a downward movement of the crosshead, and means for actuating the crosshead.

5. A dispenser comprising a casing, an elongated hopper mounted in said casing and provided at the lower end thereof with a discharge spout, said hopper adapted to accommodate therein a container disposed to discharge the contents thereof into said discharge spout, said hopper being provided with opposed longitudinal slots, opposed guide members mounted in the casing, a crosshead operable in said slots and slidable between said guides, a follower on said crosshead and movable therewith interiorly of the container for forcing the contents of the latter therefrom, knives on the crosshead and working in said slots for slitting the container in advance of the crosshead and incidental to a downward movement of the crosshead, a closure for the discharge spout at the outlet end of the latter, and means connected with the crosshead and said closure for operating the crosshead and closure simultaneously.

6. A dispenser comprising a casing, an elongated hopper mounted in said casing and provided at the lower end thereof with a discharge spout, said hopper adapted to accommodate therein a container disposed to discharge the contents thereof into said discharge spout, said hopper being provided with opposed longitudinal slots, opposed guide members mounted in the casing, a crosshead operable in said slots and slidable between said guides, a follower on said crosshead and movable therewith interiorly of the container for forcing the contents of the latter therefrom, knives on the crosshead and working in said slots for slitting the container in advance of the crosshead and incidental to a downward movement of the crosshead, a closure for the discharge spout at the outlet end of the latter, and means connected with the crosshead and said closure for operating the crosshead and closure simultaneously, said means including drums rotatably mounted in the casing, ribbons windable on the drums and connected to the crosshead, a ratchet wheel operatively associated with the drums, a lever pivotally mounted in the casing, and a spring-biased pawl carried by the lever and engaging the ratchet wheel for actuating said drums.

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