

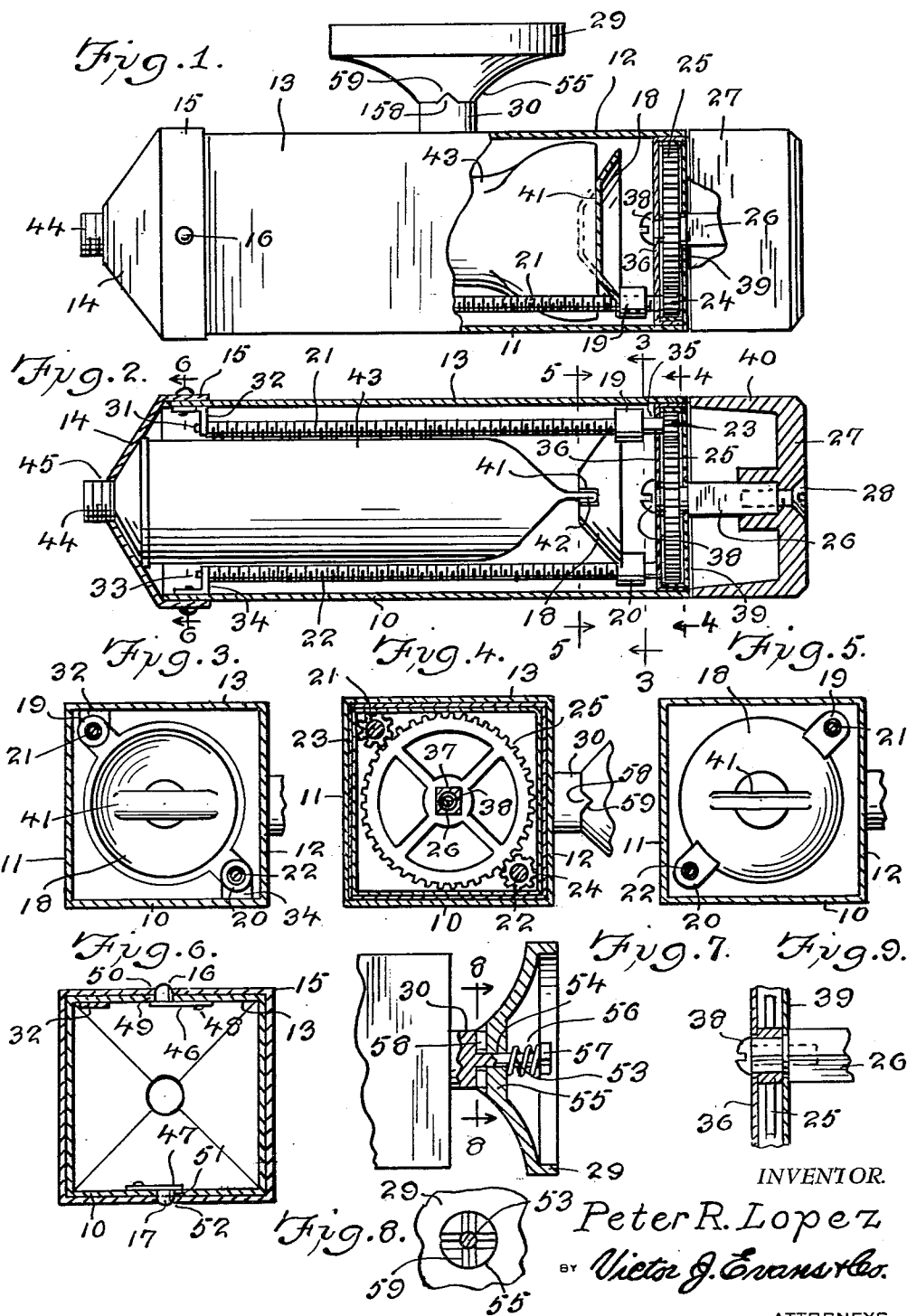
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DISPENSER FOR MATERIAL IN COLLAPSIBLE TUBES

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DISPENSER FOR MATERIAL IN COLLAPSIBLE TUBES

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3 Claims. (Cl. 222-95)

This invention relates to dispensers for collapsible tubes such as tubes used for toothpaste, shaving cream, or various types of creams and lotions, and in particular, an elongated casing having a follower or plunger carried by threaded rods positioned in the casing and rotated through gears with a knob at one end of the casing wherein the plunger is adapted to compress a collapsible tube positioned in the casing, forcing material of the tube through a threaded nipple at the opposite end of the tube whereby with the nipple extended through an opening in a conical shaped cap on the end of the casing toothpaste or the like may be dispensed for use, such as on a toothbrush or the like, by turning the knob.

The purpose of this invention is to provide means for dispensing toothpaste, shaving cream or other creams and lotions from a collapsible tube without gripping the tube by hand and wherein substantially all of the material of the tube is used.

Various types of dispensing devices have been provided for collapsible tubes, such as toothpaste tubes, however, such devices are difficult to operate and it is also difficult to use all of the material from the tube. With this thought in mind, this invention contemplates an elongated casing adapted to hold a collapsible tube with a removable conical shaped cap having an opening in the end thereof positioned on one end of the casing and with a plunger providing a follower positioned in the opposite end of the casing and adapted to be actuated by nuts on threaded rods with the threaded rods rotated manually with a knob rotatably mounted on the opposite end of the casing and adapted to actuate the threaded rods through gears.

The object of this invention is, therefore, to provide a dispenser for a collapsible tube in which material of the tube is forced through a threaded nipple on the end of the tube by turning a knob on the end of a casing in which the tube is positioned.

Another object of the invention is to provide a dispenser for collapsible tubes in which the device is adapted to be mounted on a wall or the like.

A further object of the invention is to provide a dispenser for collapsible tubes wherein material of the tubes is forced therefrom with a follower or traveling plunger in which the device is of a simple and economical construction.

With these and other objects and advantages in view, the invention embodies an elongated substantially rectangular shaped casing having elongated threaded rods in opposite corners and with material of a collapsible tube positioned therein adapted to be forced from the tube with a plunger carried by nuts threaded on the rods, the rods being rotated by pinions meshing with a gear on a shaft of a knob carried by the casing.

Other features and advantages of the invention will appear from the following description, taken in connection with the drawing, wherein:

Figure 1 is a side elevational view of the dispenser with part of the casing broken away showing the end

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of a collapsible tube positioned in a slot of a plunger in the casing.

Figure 2 is a longitudinal section through the dispenser showing a collapsible tube positioned in the casing thereof and illustrating the gears and threaded nuts or hubs of the plunger.

Figure 3 is a cross section through the casing of the dispenser taken on line 3-3 of Figure 2.

Figure 4 is a cross section through the casing of the dispenser taken on line 4-4 of Figure 2 showing the arrangement of the gear assembly.

Figure 5 is a cross section through the casing taken on line 5-5 of Figure 2 showing an elevational view of the plunger.

Figure 6 is a cross section through the casing taken on line 6-6 of Figure 2.

Figure 7 is a view showing an end of the dispenser with parts broken away and illustrating, in section, the spring actuated wall bracket which extends from one side of the dispenser.

Figure 8 is a sectional view taken on line 8-8 of Figure 7 showing the right angularly disposed grooves for retaining the dispenser in adjusted positions.

Figure 9 is a longitudinal section through the gear housing of the dispenser illustrating the connection of the knob for rotating the gears to the dispenser casing.

Referring now to the drawing, wherein like reference characters denote corresponding parts, the collapsible tube dispenser of this invention includes a casing having a base 10, side walls 11 and 12 and an upper panel 13, a cap 14 having a continuous flange 15 secured on the end of the casing with spring actuated buttons 16 and 17, a plunger 18 having threaded hubs 19 and 20 positioned on threaded rods 21 and 22, respectively, pinions 23 and 24 mounted on the rods 21 and 22, respectively, and positioned to mesh with a gear 25 mounted on the end of a shaft 26, a knob 27 secured on the end of the shaft with a screw 28, and a wall bracket 29 secured to a stud 30 on one side of the casing.

Forward end 31 of the threaded rod 21 is rotatably mounted in a clip angle 32 positioned on the inner surface of the upper panel 13 of the casing and forward end 33 of the rod 22 is rotatably mounted in a similar clip angle 34 on the base 10 of the casing. The clip angles 32 and 34 are secured in position by welding or other suitable means. The opposite end of the rod 21 is rotatably mounted in an opening 35 in a wall 36 of a gear casing provided in the end of the dispenser and the rod 22 is rotatably mounted in a similar opening in the lower part of the wall. The rods 21 and 22 extend through the wall 36 and the pinions 23 and 24 are secured to the ends of the rods, as shown in Figure 4. The pinions 23 and 24 are positioned to mesh with the gear 25 which is mounted on a square section 37 of the shaft 26, and, as shown in Figure 9, the gear is retained in position on the section of the shaft with a screw 38. The gear casing is also provided with an outer wall, as indicated by the numeral 39, and the edge of the flange 40 on the knob 27 is spaced from the wall 39, as shown in Figure 2.

The plunger 18 is provided with a transversely disposed slot 41 in which end 42 of a collapsible tube 43 is secured, as shown in Figure 2, and a threaded nipple 44, positioned on the opposite end of the tube, is adapted to extend through an opening 45 in the cap 14. With the parts in this position, the conventional collapsible tube cap may be threaded on the nipple 44.

The buttons or pins 16 and 17 which retain the cap 14 in position on the end of the casing are mounted on springs 46 and 47 and the springs are secured to the upper panel 13 and the base 10, respectively, with suitable fasteners, such as the rivets 48. With the buttons

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mounted in this manner, the button 16 extends through an opening 49 in the panel 13 and also into an opening 50 in the flange 15 of the cap; and the button 17 extends through an opening 51 in the base 10 and also into an opening 52 in the flange 15 of the cap. By pressing inwardly on the buttons 16 and 17, the cap is adapted to be removed to remove an empty tube, and after replacing the tube, the cap is snapped into position on the end of the casing.

The stud 30 is shown as being provided on the wall 12 and a pin 53, extending from the stud, extends through an opening 54 in a boss 55 of the wall bracket 29 and a spring 56 which is retained on the pin 53 with a nut 57 resiliently holds the stud 30 against the face of the boss 55. The stud 30 is provided with radially disposed ridges 58 that are positioned to extend into grooves 59 in the boss 55 of the bracket whereby the dispenser is adapted to be retained in angularly disposed positions.

With the dispenser formed and assembled in this manner and with a collapsible tube 43 positioned in the body of the dispenser with the sealed end 42 in the slot 41 of the plunger 18 and with the nipple 44 extended through the opening 45, the knob 27 is rotated whereby the follower or plunger 18 travels against the tube forcing material therein through the nipple 44. After a sufficient quantity of the material is removed, the cap of the tube is replaced and the possibility of toothpaste or the like being accidentally discharged from the end of the tube is substantially eliminated. By this means, a comparatively neat appearing dispenser is provided and the possibility of waste of the material thereof is obviated.

It will be understood that modifications, within the scope of the appended claims, may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. In a dispenser for material in collapsible tubes, the combination which comprises an elongated casing, rectangular shape in cross section, threaded rods rotatably mounted in corners of the casing, a traveling plunger having internally threaded hubs positioned with the hubs on said threaded rods, a knob rotatably mounted on the casing, a shaft connected to said knob, a gear on said shaft, a pinion gear on the end of each rod meshing

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with the gear on said shaft for rotating the threaded rods upon rotation of the knob, and a cap removably mounted on the end of the casing opposite to the end on which the knob is positioned and having a centrally positioned opening therein adapted to receive a threaded nipple of a collapsible tube positioned in the casing.

2. In a dispenser for material in collapsible tubes, the combination which comprises an elongated casing, rectangular shape in cross section, threaded rods rotatably mounted in corners of the casing, a traveling plunger having internally threaded hubs positioned with the hubs on said threaded rods, a knob rotatably mounted on the casing, a shaft connected to said knob, a gear on said shaft, a pinion gear on the end of each rod meshing with the gear on said shaft for rotating the threaded rods upon rotation of the knob, a cap removably mounted on the end of the casing opposite to the end on which the knob is positioned and having a centrally positioned opening therein adapted to receive a threaded nipple of a collapsible tube positioned in the casing, said cap being retained in position with spring actuated buttons.

3. In a dispenser for material in collapsible tubes, the combination which comprises an elongated casing, rectangular shape in cross section, threaded rods rotatably mounted in corners of the casing, a traveling plunger having internally threaded hubs positioned with the hubs on said threaded rods, a knob rotatably mounted on the casing, gears mounted on said threaded rods, a gear rotatably mounted in the casing and adapted to be actuated by the knob, said gear being adapted to be actuated by the knob meshing with the gears on the threaded rods whereby the threaded rods are rotated upon rotation of the knob, a cap removably mounted on the end of the casing opposite to the end on which the knob is positioned and having a centrally positioned opening therein adapted to receive a threaded nipple of a collapsible tube positioned in the casing, said cap being retained in position with spring actuated buttons.

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