May 24, 1955 H. L. ROYALS 2,709,023

PASTE DISPENSER FOR THE EXTRUSION OF PASTE FROM A COLLAPSIBLE TUBE

Filed May 10, 1952 2 Sheets-Sheet 1

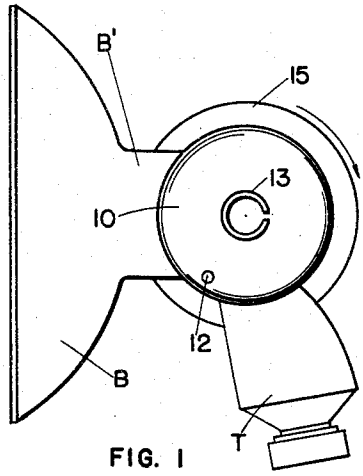


FIG. 1

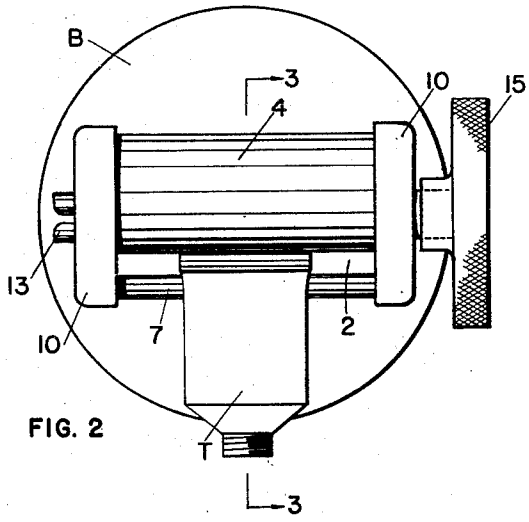


FIG. 2

FIG. 3

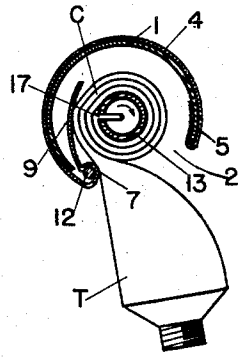
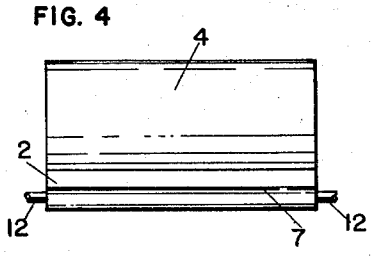


FIG. 4



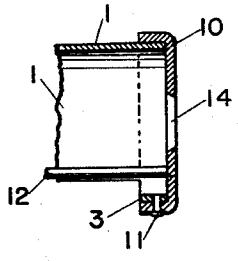


FIG. 5

FIG. 6

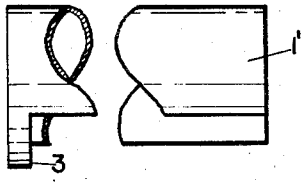


FIG. 7

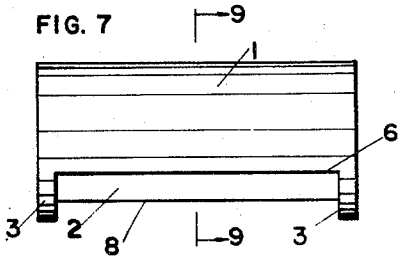


FIG. 8

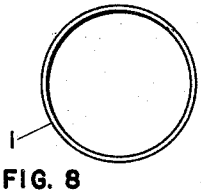
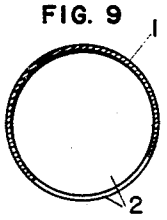


FIG. 9



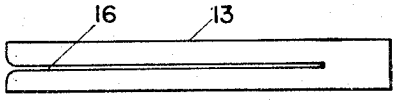


FIG. 10

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PASTE DISPENSER FOR THE EXTRUSION OF PASTE FROM A COLLAPSIBLE TUBE

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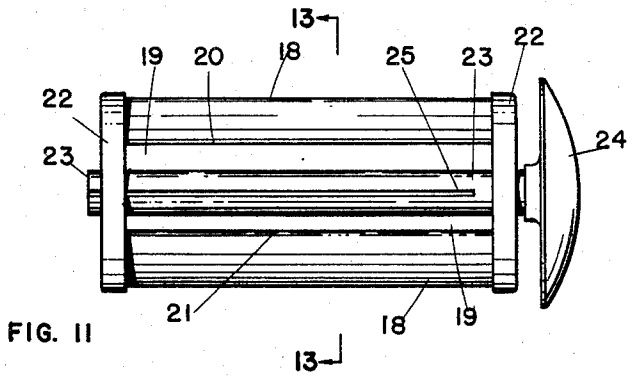


FIG. 11

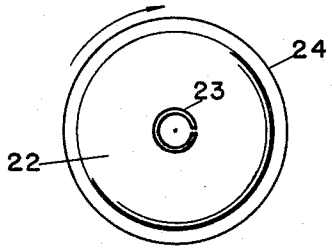
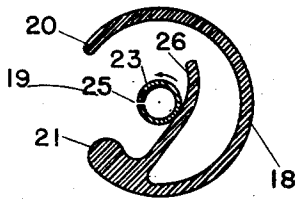


FIG. 12

FIG. 13



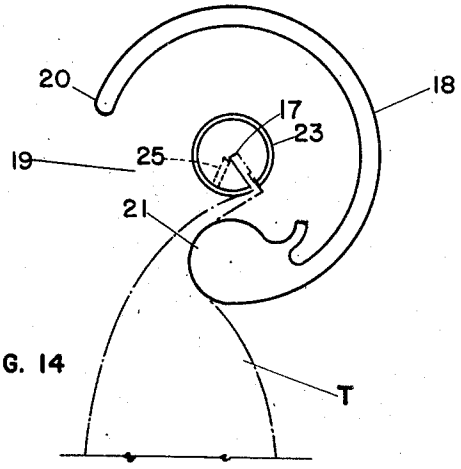


FIG. 14

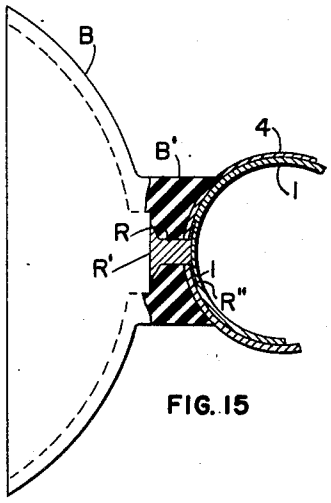


FIG. 15

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2,709,023

PASTE DISPENSER FOR THE EXTRUSION OF PASTE FROM A COLLAPSIBLE TUBE

Herbert L. Royals, Miami, Fla.

Application May 10, 1952, Serial No. 287,170

2 Claims. (Cl. 222—97)

This invention relates to a paste dispenser of the type employed in the mechanical extrusion of the contents of the conventional collapsible tube, such as are used for the packaging of tooth paste, shaving cream, shampoo, cosmetic merchandise and the like. More particularly, the dispenser to which the invention has specific application is of the type in which the collapsible tube is arranged in downwardly directed relation to the extruding mechanism, the nozzle of the tube extending for reception of the tube contents from below.

An object of the invention is to provide a collapsible tube dispensing device which will be simple and efficient in use and of ready and economical manufacture.

Other advantages of the invention will be discernible from the detailed description thereof hereinafter set forth.

The invention is embodied in a paste dispenser of which two forms are exemplified in the accompanying drawings, it being understood that the invention is susceptible of various modifications without departing from the scope of the appended claims. The views in the drawings are as follows, like reference numerals designating identical parts throughout the several figures:

Fig. 1, an end elevation, and

Fig. 2, a front elevation of the dispenser;

Fig. 3, a section on line 3—3 of Fig. 2;

Fig. 4, a front elevation of the backing sheet;

Fig. 5, a fractional vertical longitudinal section through an end plate;

Fig. 6, an elevation of one form, and

Fig. 7, an elevation of another form of the frame;

Fig. 8, an end view of the frame shown in Fig. 7;

Fig. 9, a section on line 9—9 of Fig. 7;

Fig. 10, an elevation of the spindle;

Fig. 11, an elevation of another form of the invention, and

Fig. 12, an end elevation thereof;

Fig. 13, a section on line 13—13 of Fig. 11;

Fig. 14, an enlarged diagrammatic section through a modified form of the invention.

Fig. 15, a fractional section on line 3—3 of Fig. 2, exemplifying an attaching means available in the art for fastening the dispenser to supporting surfaces.

In one of the forms which the invention may take, the dispenser has a tubular cylindrical frame 1, from which is slotted a longitudinal passage 2 (Fig. 6). This passage may terminate inwardly of the ends thereof to provide a pair of fastening rings 3.

Arranged circumferentially about the frame, is an integrally formed backing member 4 consisting of a single sheet of any suitable spring-like and resilient metal or plastic (Figs. 3, 4, and 6). This sheet is, preferably, preformed to provide a hook member 5 engaging the upper marginal edge 6 of the passage 2, the sheet then passing around the frame to terminate in a re-entrant portion comprising a longitudinal bead 7 disposed along the lower marginal edge 8 of the passage and including a spring leaf member 9 which projects into the interior of the frame.

The frame terminates at each end thereof in an end plate 10 secured thereto in any suitable manner as by fastening elements 11 (Fig. 5). The bead 7 is carried by and reinforced with an internal shaft 12, the ends of which may be upset in the end plates 10.

Axially disposed through the frame is a hollow spindle 13, pintled for rotation in bearings 14 (Fig. 5) of the end plates. A turning knob 15 is fixed to the spindle at one end thereof and suitably milled to facilitate its manual rotation. The spindle has a longitudinal slit 16 formed along the periphery thereof to receive the flattened, usually crimped end portion 17 of a collapsible tube (Figs. 3 and 9), in which these containers are conventionally terminated.

The dispenser may be provided with any suitable type of bracket for mounting upon a supporting surface, Fig. 15 illustrating the usual rubber suction cup attachment having a resilient cup member B and stem B'. This fastening expedient may include a rivet, for example, as at R, axially disposed in the cylindrical stem B' and having a head R' and a flat arcuate flange member R''. Before flattening the head R', the rivet may be inserted through a perforation in the backing member 4, the flange R'' being seated against the inner surface of the member 4, a suitable recess being provided in either the cylindrical frame 1 or backing member 4 to receive the flange R''. It will, of course, be understood that the expedient just described is exemplary only as one of the obvious means of securing the suction cup assembly to the device proper. While the bracket shown at B and B', Figs. 1 and 2, suggests the suction cup type of attachment, the mounting means may take the form of a screw-fastened bracket or of a ceramic holder cast in place with the conventional wall tile unit, these attaching devices being well known in the art.

If desired, the backing element 4 may be slid longitudinally over the frame, using the construction shown in Fig. 6 wherein one end of the frame has the fastening ring 3 omitted.

In practicing this form of the invention, the flattened end 17 of the collapsible tube is inserted in the slit 16 of the spindle by withdrawing the same sufficiently to permit the tube to be slid into the spindle and re-inserting the spindle with tube attached, as will be understood. Rotating the spindle in the direction of the arrows brings the bulk of the tube T into compression between the bead 7 and the spindle, the leaf 9 acting solely to urge the coil C (Fig. 3) into a compact roll. As the coil builds up and the tube becomes depleted, the construction of the dispenser will cause the tube to incline forwardly and facilitate operative contact therewith.

In the form of the invention illustrated in Figs. 11 to 14, the dispenser may be fabricated from an integrally formed structure comprising a tubular shell 18 of cylindrical shape having a longitudinal passage 19 in the frontal periphery thereof. This passage is defined along its upper marginal edge as at 20 and along its lower marginal edge by a rounded bead member 21 disposed longitudinally of the shell. At each end thereof, the shell terminates in an end wall or plate 22, each having an axial bearing for the rotational support of a spindle 23 which is operable by a knob 24 fixed thereto. The spindle has a longitudinal peripheral slit 25 to receive the flattened end 17 of a collapsible tube, as hereinbefore described.

The bead 21 is disposed forwardly of a vertical plane transecting the spindle diametrically thereof and it is by virtue of this construction that when the tube T is first inserted into the spindle structure, the bulk of the tube is at once interposed between the spindle and the bearing surface of the bead 21, causing extrusion to begin without undue waste of the contents of the tube.

The spring leaf member 26, in this construction, as well as the shell and bead structure, may be fabricated

from a single unitary body, by plastic molding or extrusion.

The spindle may be inserted from either end of the device for right or left hand operation and is turnable in the rotational direction indicated by the arrows in the several figures.

The invention is thus seen to provide a novel form of paste dispenser, in which the collapsible tube is at once brought into impingement with the bearing bead, even when suspended in its initial position, as when the slit is in the dotted line position shown in Fig. 14.

Having thus described the invention and the mode of its practice, what I claim as new and desire to secure by Letters Patent, is:

1. In a dispensing device for the extrusion of paste from a collapsible tube operatively disposed in downwardly directed suspension therefrom, the combination of an elongated cylindrical shell having a longitudinal passage extending along the frontal periphery thereof for the admission of said tube therethrough, a pair of end walls arranged at the ends of said shell, an axial hollow spindle extending through said shell and pintled in said end walls, a hand operating knob carried by said spindle at one end thereof, said spindle having a longitudinal slot formed along the periphery thereof to receive the flattened end of said tube, said passage being defined along the lower marginal edge thereof by an arcuate bead having a peripheral bearing surface adapted for the impingement thereagainst of the rear wall of said tube, a re-entrant spring leaf member inwardly projected from said head and engageable with said spindle rearwardly thereof to receive therebetween the depleted portion of said tube whereby to facilitate the coiling thereof about said spindle, and means to secure said device to a supporting surface.

2. A dispensing device for the extrusion of paste from a collapsible tube directed downwardly therefrom, comprising a tubular frame having a longitudinal passage formed in the periphery thereof and defining upper and lower marginal edges, a backing sheet arranged circumferentially over said frame, said backing sheet terminating along one end thereof in a hook member adapted to engage said upper marginal edge and along the opposite edge thereof in a re-entrant portion extending into said passage adjacent and along said lower marginal edge of said passage, said re-entrant portion including a longitudinal bead and a spring leaf member projected into the interior of said frame, a pair of end plates arranged against the ends of said frame, an axial hollow spindle extending through said frame and pintled in said end plates, said spindle having a longitudinal slot formed along the periphery thereof for the reception of the flattened end of said collapsible tube, said bead having a working surface adapted to receive the rear wall of said tube thereagainst and said spring leaf member being engageable with the depleted portion of said tube in the coiling thereof about said spindle, means to rotate said spindle and means to mount said dispenser upon a supporting surface.

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