April 7, 1959 L. ROBERTSON 2,880,911

COLLAPSIBLE TUBE DISPENSING SUPPORT

Filed July 9, 1956 2 Sheets-Sheet 1

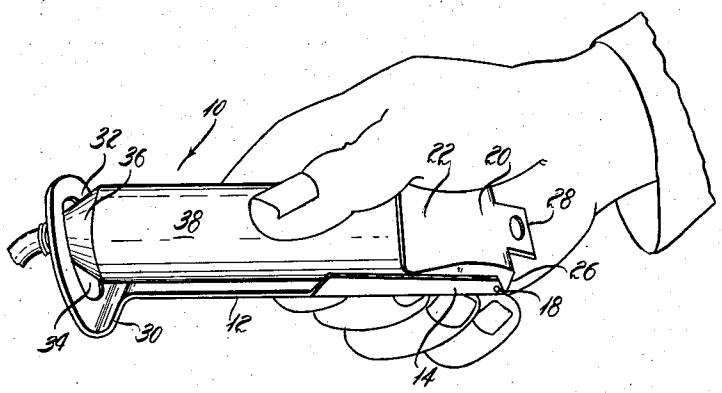


Fig. 1

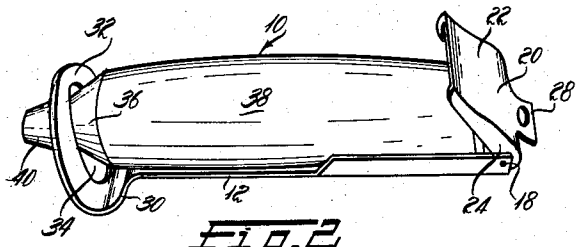


Fig. 2

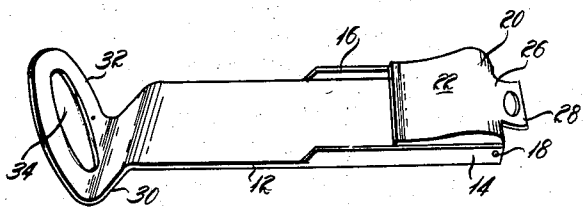


Fig. 3

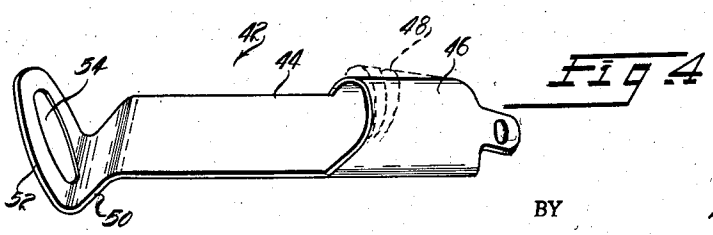


Fig. 4

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COLLAPSIBLE TUBE DISPENSING SUPPORT

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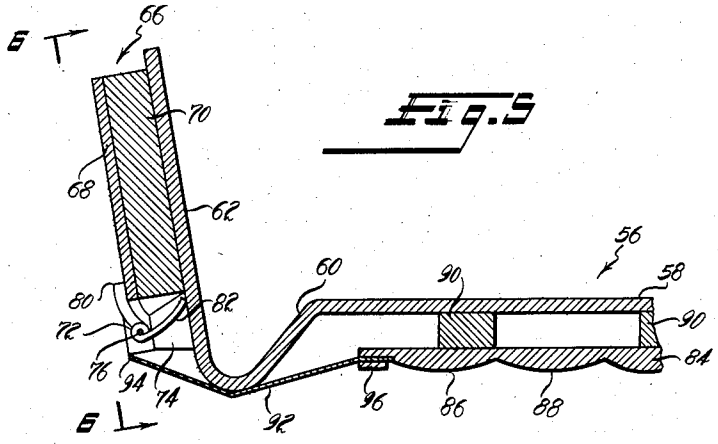


Fig. 5

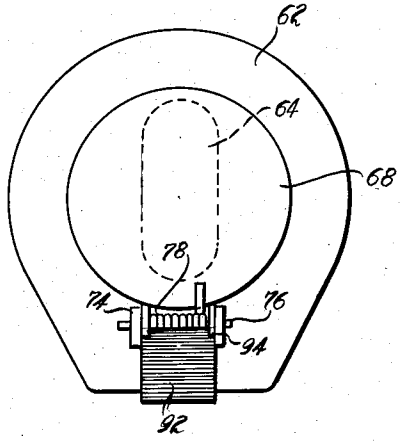


Fig. 6

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COLLAPSIBLE TUBE DISPENSING SUPPORT

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3 Claims. (Cl. 222—105)

This invention relates to a dispensing device and more particularly relates to a holder and dispenser for materials of the paste type contained in tubes.

A large variety of different types of paste type materials are currently marketed in dispensable tubes wherein the material is dispensed by squeezing the tube. While this type of marketing container is economical and highly convenient, its use by people of all ages presents some problems. Thus, unless one carefully dispenses the material from such a tube by first applying pressure to the rear end thereof and gradually squeezing the tube to the front end thereof, the tube is not completely emptied of its contents and there is a very real probability that the tube will be ruptured or broken prior to the time that it is emptied. In addition, unless the foregoing procedure is followed in emptying the tube a certain amount of wastage will be encountered. While a number of different types of tube holders have been proposed in order to ameliorate this problem, these have generally been relatively complex and expensive and have not found widespread public acceptance.

It is, accordingly, the primary object of the present invention to provide a holder and dispenser for tube-contained materials which is inexpensive and which permits complete emptying of the contents of the tube.

It is another object of the invention to provide a holder and dispenser of the foregoing type which is extremely simple in nature and which will permit even children to dispense the tube-contained materials in such a manner as to completely exhaust the tube before it is necessary to discard it.

It is another object of the invention to provide a holder and dispenser of the foregoing type which in one embodiment thereof provides for sealing the tube so that the conventional tube cap may be disposed of upon mounting the tube in the holder.

These and other objects and advantages of the invention will become apparent upon reference to the following specification and claims and appended drawings wherein:

Figure 1 is a perspective view of material being dispensed from a tube mounted in a holder according to one embodiment of the invention;

Figure 2 is a perspective view of the holder and dispensing device of the invention with a tube mounted therein prior to clamping the tube into position;

Figure 3 is a perspective view of a holder and dispensing device of the present invention prior to mounting a tube therein;

Figure 4 is a perspective view of another embodiment of a holder and dispensing device according to the invention;

Figure 5 is a vertical section taken along the center line of another embodiment of a tube holder and dispenser according to the invention; and

Figure 6 is a vertical elevation taken along the line 6—6 of Figure 5.

Referring to the figures of the drawing, and particularly Figures 1 through 3, there is shown a tube holder and dispensing device generally indicated at **10** consisting of a base plate **12** having a pair of upstanding flanges **14** and **16** at the rear end thereof. A pivot pin **18** is mounted transversely on the base plate **12** through the flanges **14** and **16** at the rear end of the device and a clamp **20** is pivotally secured thereon.

Clamp **20** consists of a curvate top plate **22** having downwardly extending flanges **24** at the sides thereof and having a rolled over end **26** at the rear edge thereof. An actuating handle **28** is cut from the rolled over edge **26** and extends to the rear to provide a means for actuating the clamp **20**. A spring, not shown, is provided over the pivot pin **18** in order to bias the clamp **20** into a closed position, as shown in Figure 3.

The front end of the holder is bent downwardly at **30** and a tube seating member **32** extends upwardly from this downwardly bent portion. The tube seating member **32** is provided with a vertically extending elongated aperture **34** to receive the conical front end **36** of a tube **38**.

The operation of the holder and dispensing device is as follows: The clamp **20** is depressed by means of the handle **28** and the upper end of the tube seating member **32** is bent to the left so as to permit the insertion of a tube **38** into the holder. The tube seating member **32** then springs back into position and release of the handle **28** permits clamp **20** to assume a closed position as shown in Figure 1. The cap **40** on the tube **38** remains in position for closure purposes. Material may be dispensed from the tube **38** by removing the cap **40** and pressing the tube **38** against the base plate **12** as shown in Figure 1. The material contained in the tube may be worked from the rear end thereof forward to the front end of the tube and all of the material in the tube may be removed by simply squeezing the tube against the base plate **12**. This base plate forms a surface against which the tube may be compressed so that absolutely all of the material contained in the tube may be removed. As the tube is progressively compressed towards the forward end and as the material is removed therefrom, the front end of the tube tends to be lowered in the holder. The downwardly bent portion **30** permits the conical end **34** of the tube to be forced down into the recess created by the bent section as the tube is emptied of its contents. This permits a more thorough evacuation of the tube without breakage thereof and permits the last material contained in the tube to be pressed into the conical end thereof against the tube seating member **32** without removing the tube from the holder **10**. The elongated aperture **34** permits this motion to facilitate complete emptying of the tube. Where a circular hole is provided in the mounting member **32**, it is difficult to remove all of the material from the tube without rupturing the tube or removing the tube from the holder and dispenser. The holder may be formed of sheet metal or any suitable plastic material.

Referring to Figure 4 there is shown another embodiment of the invention, comprising a holder **42** having a base plate **44** and having a pocket **46** at the rear end thereof. According to this embodiment of the invention the holder is preferably formed of a plastic material and the pocket **46** is preferably elastic in nature so as to permit distention thereof, as shown at **48**, in order to permit insertion of a tube. The forward end of the holder is bent downwardly at **50** as in the preceding embodiment of the invention and is provided with a tube seating member **52** extending from the downwardly bent portion and having an elongated aperture **54** therein. Operation of this embodiment of the inven-

tion is basically the same as that disclosed in connection with Figures 1 through 3.

In dispensing tube-contained materials such as toothpaste wherein the tube is used by a number of people at frequent intervals, such as daily, it is a common experience that certain users seem constitutionally indisposed to replacing the cap. This results in a drying of the material adjacent to the uncovered front end of the tube and is frequently unpleasant to other users of the same tube. According to another embodiment of the invention, my holder and dispenser is provided with a tube-sealing means which is automatically actuated upon squeezing of the tube to dispense the material therefrom and which automatically closes on release of this squeezing pressure. Referring to Figures 5 and 6, there is shown an illustration of a tube holder and dispenser constructed according to this embodiment.

Referring to Figure 5, there is shown a tube holder and dispenser generally indicated at **56** having a base plate **58**, downwardly bent portion **60**, and tube seating member **62**. The tube seating member **62** is provided with an elongated aperture **64** as in the preceding embodiments of my invention. Pivotally mounted on the outside front surface of the tube seating member **62** is a closure member **66** which consists of a generally circular plate **68** having a closure gasket **70** of a resilient material such as foam rubber mounted thereon by a suitable adhesive. The plate **68** is provided with a pair of lugs **72** extending parallelly from the lower edge thereof and these lugs are pivoted to a pair of ears **74** attached to the front surface of the mounting member **62**. A pivot pin **76** passes through apertures in ears **74** and in lugs **72** and receives a coil spring **78**. One end **80** of the coil spring **78** bears against the outer surface of the plate **68** and the other end **82** bears against the front surface of the tube seating member **62** to urge the plate **68** and gasket **70** towards and against the outer surface of the tube seating member **62**, as shown in Figure 5. Mounted on the under side of the base plate **58** is an actuator plate **84** which may conveniently be provided with undulated finger-grip portions **86** and **88**.

The actuator plate **84** is secured to the under side of the base plate **58** by means of sponge rubber pads **90**, which may be secured to the base plate and actuator plate by any suitable adhesive. A flexible connector member **92**, which may be of any flexible material such as metal or plastic, is secured to the upper edges of the lugs **72** at **94** and is secured at its other end to the forward edge of the actuator plate **84**, as by means of a loop **96**. While the connector member **92** is pictured in Figures 5 and 6 as being connected to the upper edges of the lugs **72**, it will be apparent that it could also be connected to the outer surface of the plate **68** adjacent to the position at which the spring end **80** contacts this plate.

Operation of this embodiment of the invention is similar to that of preceding embodiments except that a closure member is provided. Thus when one grips the holder and tube, as shown in Figure 1, and moves the actuator plate **84** rearwardly against the resilient force provided by sponge rubber pad **90**, the connector **92** pulls downwardly on the upper edge of lugs **72** to cause the plate **68** and gasket **70** to rotate in a counterclockwise direction to uncover the spout of a tube held in a holder. Upon release of the squeezing pressure which ejects material from the tube, the spring **78** returns the plate **68** and gasket **70** to its closed position, while the sponge rubber pad **90** returns the actuator plate **84** to its original position. The gasket **70** is preferably of a considerable thickness in relation to the plate **68**. preferably being thicker than such plate, so as to provide air-tight closure of a tube mounted in a holder regardless of the position of the tube spout as the tube is emptied and as the forward end of the tube drops lower and closer to the base plate **58**.

It will be apparent that the sponge rubber pads **90** could readily be replaced with springs to hold the actuator plate **84** in position.

It will be apparent from the foregoing that I have provided a holder and dispenser for tube-contained materials which is simple in construction, capable of economical manufacture, and capable of use by even small children. Through the use of the holder of this invention it is possible to expel all of the material from the tube without wastage and without breakage of the tube. According to one embodiment of my invention, a tube-sealing means is provided so that the conventional tube cap may be disposed of in mounting the tube, and so that the tube is automatically sealed upon completion of the discharge of material contained therein.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:

1. A dispensing device for dispensing material contained in tubes comprising an elongated base plate, means on one side of said base plate for clamping the rear of a tube at one end of said base plate, a downwardly bent section at the other end of said base plate extending away from the opposite side of said base plate, and a mounting member attached to said bent section and extending upwardly therefrom past the plane of said base plate, said mounting member having an elongated aperture therein with the long axis of said aperture substantially normal to said base plate, a closure plate for a tube pivoted to said mounting member and spring urged into contact therewith, a resilient gasket attached to the mounting member side of said closure plate, and means attached to said opposite side of said base plate for rotating said closure away from said mounting member.

2. A dispensing device for dispensing material contained in tubes comprising an elongated base plate, means on one side of said base plate for clamping the rear end of a tube at one end of said base plate, a downwardly bent section at the other end of said base plate extending away from the opposite side of said base plate, a mounting member attached to said bent section and extending upwardly therefrom past the plane of said base plate, said mounting member having an elongated aperture therein with the long axis of said aperture substantially normal to said base plate, and a closure for a tube mounted in said dispenser comprising a plate pivoted to said mounting member and spring urged into contact therewith, a resilient gasket attached to the mounting member side of said plate, and means attached to said opposite side of said base plate for rotating said closure away from said mounting member, said means attached to the underside of said base plate comprising an actuating plate resiliently attached to said opposite side of said base plate, and a connector member connecting said actuating plate to said plate.

3. A dispensing device as set out in claim 2 wherein said connector member is flexible and said gasket is substantially thicker than said plate.

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