Oct. 12, 1965 H. S. BAILEY 3,211,341

TUBE HOLDER AND DISPENSER

Filed May 9, 1963

FIG_1

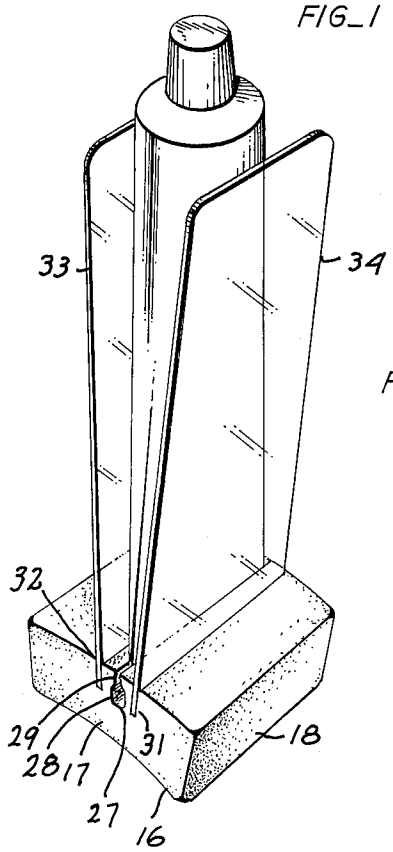


FIG_5

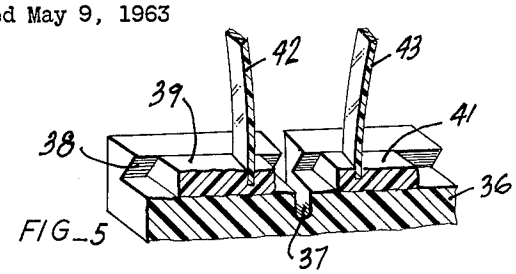


FIG_2

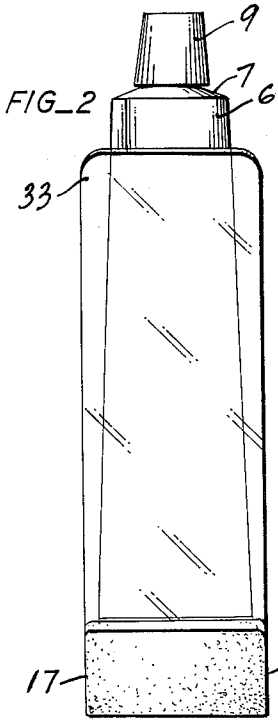


FIG_3

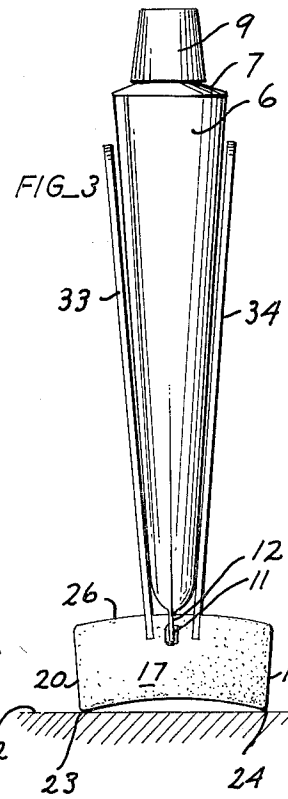
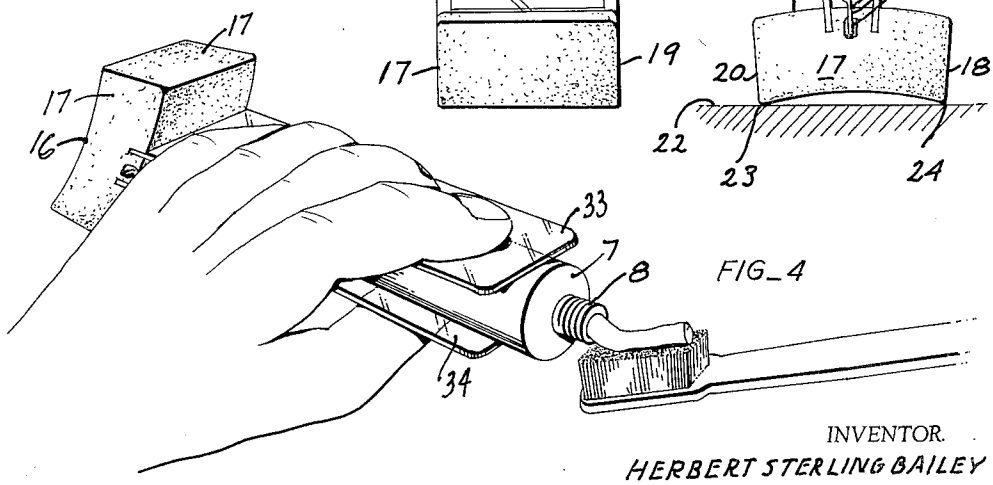


FIG_4



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United States Patent Office 3,211,341 Patented Oct. 12, 1965

3,211,341

TUBE HOLDER AND DISPENSER

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Filed May 9, 1963, Ser. No. 279,259
4 Claims. (Cl. 222—103)

My invention relates to means especially adapted for use in connection with tubes normally provided for holding and dispensing plastic materials. While the invention is not limited thereto, a common example is a toothpaste tube such as a container having flexible collapsible walls secured together at one end in a generally rectilinear fashion. There may or may not be an enlarged bead at the rectilinear end. At the other end the walls merge with a relatively stiff cone. In the ordinary use of such tubes, they can quickly become misshapen and of awkward, even unusable configuration, resulting in an inability to discharge the entire contents thereof and in an unsightly condition. Furthermore, they are not easily manipulated by people of various grips and strengths and are not always readily and neatly available in a particular place of storage.

It is therefore an object of my invention to provide a tube holder and dispenser which is effective not only to engage and retain a tube, but to hold the tube in an accessible position of storage, to make the tube collapse in an orderly and economical fashion so that substantially all of its contents are dispensed, and also to improve the sightliness of the arrangement.

Another object of my invention is to provide a tube holder and dispenser which can easily and economically be manufactured.

Another object of the invention is to provide a tube holder and dispenser which is sufficiently inexpensive so that it can be disposed of after use with a single tube, yet which is sturdy and enduring enough to last for utilization with a number of successive tubes.

A still further object of the invention is to provide a tube holder and dispenser which is a substantial improvement in appearance over the plain tube itself.

Another object of the invention is to provide a tube holder and dispenser which can easily be utilized by anyone without previous instruction.

Another object of the invention is to provide a tube holder and dispenser which is sanitary and can easily be cleaned and maintained clean.

Another object of the invention is to provide a tube holder and dispenser which can be readily utilized with tubes of different sizes and shapes.

Other objects together with the foregoing are attained in the embodiments of the invention described in the accompanying description and illustrated in the accompanying drawings, in which:

FIGURE 1 is a perspective view of a tube holder and dispenser as it is employed in connection with a tube;

FIGURE 2 is a side elevation of the tube holder and dispenser;

FIGURE 3 is an end elevation of the tube holder and dispenser;

FIGURE 4 is a perspective view showing the tube holder and dispenser as it appears in use; and

FIGURE 5 is a perspective view of a section of a modified form of tube holder and dispenser.

While the tube holder of the invention can be embodied in a number of different ways and can be designed especially for use in connection with various different sorts of tubes, it has successively been utilized in connection with a tube of the sort shown herein. The tube itself comprises a body **6** usually made of thin metal or readily deformable material at its upper end engaging a substantially circular, conical neck **7** having a threaded discharge

sleeve **8** closed by a removable threaded cap **9**. The filled tube gradually changes its contour from the top toward the bottom and at the bottom is substantially rectilinear. The tube may or may not be provided with an enlarged rectilinear bead **11** extending transversely of the tube and comprised either of a plurality of folds of the tube material, or of a closing clip, or both. If there is no bead, the bottom thickness is that of both walls, but the bead **11** is substantially wider in cross sectional dimension than the adjacent portion **12** of the tube **6**, where the tube wall of thin metal is flattened.

Pursuant to the present invention, the tube holder and dispenser has a base **16**. The base can be of rigid material, but conveniently is of a somewhat deformable, resilient and flexible material such as one of the modern plastics, for example, polyethylene, or can be of a rubber or elastomeric material, or in some instances can even be of relatively springy metal. In any event, the base **16** is of block-like configuration, being substantially rectangular in plan and having four side walls **17**, **18**, **19** and **20**. In end elevation the entire block may be rectangular and rectilinear but in one instance is slightly bowed or curved (the drawing being exaggerated for clarity) so that when the base is resting on a flat surface **22**, only the edges **23** and **24** of the block are in direct contact with the surface. The upper or top surface **26** of the block may or may not be similarly curved.

About midway between the sides **18** and **20**, the base block is contoured to provide a transversely extending interior channel **27** extending entirely through the block, in most instances, and having a configuration to accommodate the lower end of the tube. The channel can be shaped to afford a relatively enlarged lower section **28** designed closely to receive and to abut the bead **11**. The upper portion of the channel has a linear opening **29** to the top surface **26**. This opening usually extends from side to side of the block and has a width or transverse dimension which is about the same as or, in the case of a bead **11**, is something less than the transverse dimension of the lower portion **28** of the channel. The cross sectional configuration of the unloaded channel and its opening is approximately the same as or a little smaller than the cross sectional configuration of the lower end of the tube, and in one case is made to conform to the bead **11** and the adjacent relatively thin portions of the tube **6**.

The base block as so far described can be used in many cases just by itself as an effective and handy support for the tube **6**. It is merely necessary to dispose the bead **11** and the adjacent portions **12** of the tube within the block. This can be done either by sliding the tube end transversely into the channel until the tube is substantially centrally disposed, or can be accomplished, if the block is resilient, by grasping the ends **18** and **20** of the block and bowing the block so as to deform the resilient material and open the upper portion of the channel as well as the lower portion thereof, so that the tube **6** can be moved endwise into position. Then when the grip on the block is released and the block returns toward its original situation due to its own resiliency, the tube is tightly gripped by the stressed block material.

It is preferred in most instances to augment the base block with devices for use in gripping the tube. For that reason, on either side of the channel **27** the block is formed with grooves **31** and **32**. These grooves extend transversely of the block substantially parallel to the channel **27** and in the same way open upwardly through the upper surface **26** of the block. They extend only partially into the depth of the block and conveniently are of similar but somewhat lesser cross sectional area than the lower ends of a pair of panels **33** and **34**. These panels can conveniently be made of relatively stiff and conven-

iently transparent plastic. They are substantially rectangular in configuration, although having some rounded corners. They are of a height somewhat less than the height of the tube **6**, and are of a width the same as or slightly greater than the width of the tube. The panels can be interchanged with other panels from time to time to cooperate with tubes of different sizes and shapes.

In many instances the panels **33** and **34** are simply inserted into the grooves **31** and **32** when the base block is stressed to open the grooves slightly. After insertion and after the base block is relaxed, the panels are then well gripped. In other instances, the panels are secured in place by an appropriate adhesive. Under some conditions, the panels can be integrally formed with the base block, but still have substantially the same configuration and operation.

When a tube has been positioned in the central channel and the side panels have been disposed in their respective grooves, the side panels form an upwardly opening device for use in gripping the tube **6**. The assembly can readily be rested on the surface **22** and the arched shape of the base affords only a small contact, so that if the surface is wet it can readily dry. Also, the curved base forms a slightly springy or yielding support so that the tube is quite stable.

When the device is to be used, according to one fashion, it is held substantially as shown in FIGURE 4. The cap **9** is removed and the user, by gripping the panels **33** and **34** and pressing them toward each other, exerts a substantially uniform and evenly distributed pressure on the tube **6** so that the requisite amount of the contents is expelled. The distribution of pressure is such as to cause the contents to be ejected uniformly from the tube and not, as is sometimes the case, only from immediately adjacent the conical neck **7**. When the dispensing function has been completed and the user relaxes his grip and restores the device to its upright position as shown in FIGURE 3, the resilience of the base is such as to cause the panels **33** and **34** to return to their initial condition or substantially so. Since the panels are transparent, the wording on the tube is easily read, but is protected from abrasion and smudging in use.

When the contents of the tube have been entirely dispensed, it can readily be removed from the base block by a reversal of operations; that is, either by being slid out endwise from the groove, or the base can again be pinched and bowed more so that the old tube can be axially withdrawn and a new tube can be inserted. In this fashion there is provided a handy and effective tube holder and dispenser. In some cases, two or more tubes can be positioned side by side in one base. In that event, the panels are preferably, although not necessarily, split longitudinally so that, if desired, each tube can be squeezed by pressure upon its own pair of panels.

As a modification, the tube holder and dispenser can take a form as shown in FIGURE 5. In this case, the base **36** is a solid block of non-magnetic material or magnetic material. Alternatively, a magnet can be included in the block. The magnet serves as a holder against an appropriate surface. The block has a transverse channel **37** to receive and/or grip the lower end, beaded or not, of a tube. The base also has a cross groove **38** that is laterally undercut and opens to the top surface

of the base. The channel intersects the groove at right angles.

Adapted to slide in the groove **38** toward and away from each other are slides **39** and **41**, conveniently of plastic and bevelled to interfit with the undercut walls of the base. Each slide has one of a pair of upstanding panels **42** and **43** of the sort previously described.

In the use of this arrangement, the lower end of a tube is seated and held or gripped in the transverse channel **37** and then the two slides **39** and **41** are urged toward the channel and toward each other. When they encounter the tube, the panels bend slightly and are rocked to tilt the slides so that the slides bind in the base. If desired, the slides can stop short of the boundaries of the base, as shown, or can be extended to project beyond the base to afford more easily available pressure surfaces.

What is claimed is:

1. A tube holder and dispenser comprising a base including an elastomeric block of deformable, resilient material having a transverse channel therein opening to the top surface of said base and adapted to receive one end of a tube, and a pair of substantially rectangular panels of relatively rigid material secured at their lower ends to said base on opposite sides of and parallel to said channel and disposed to engage the opposite sides of a tube having its end received in said channel.

2. A tube holder and dispenser comprising a pair of tube engaging panels of relatively rigid material, and an elastomeric block constituting a base of deformable resilient material secured to one end of said panels and holding said panels substantially in registry and for yielding movement relative to each other, said base having a tube end receiving channel therein the walls of which are adapted to grip the end of a tube disposed between and in substantial abutment with said panels, and said base being of an extent to support said panels and an intervening tube having its end in said channel in a substantially upright position when said base rests upon a support horizontally.

3. A tube holder and dispenser comprising a base block-like in configuration and made of deformable, resilient and flexible material having a sponge-like characteristic; means forming a transverse channel in the upper face of said base and opening to the top surface of said base, said channel being adapted to receive one end of a tube with said base in resiliently restraining engagement with said tube end; and a pair of tube-engaging panels secured at their lower ends in said base on opposite sides of and parallel to said channel, said panels being held by said base in substantially upright position in abutment with the opposite sides of a tube received in said channel.

4. A device as in claim **3** in which the bottom of said base is upwardly bowed.

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