Nov. 5, 1963 E. DAVIDSON 3,109,427

DISPENSER

Filed Jan. 9, 1961

FIG. 1

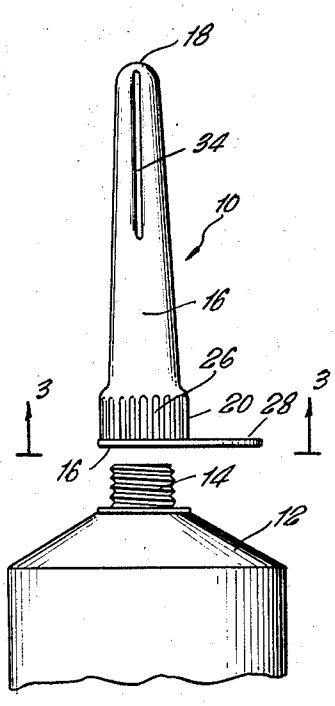


FIG. 2

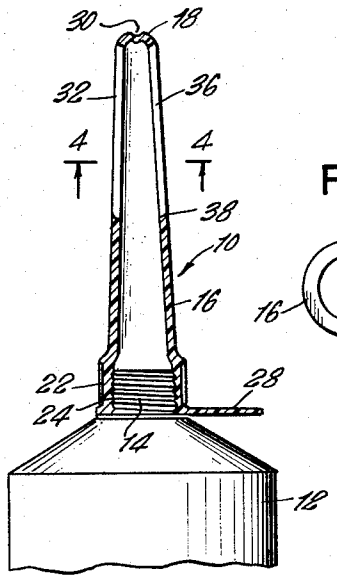


FIG. 3

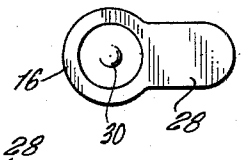


FIG. 4



FIG. 5

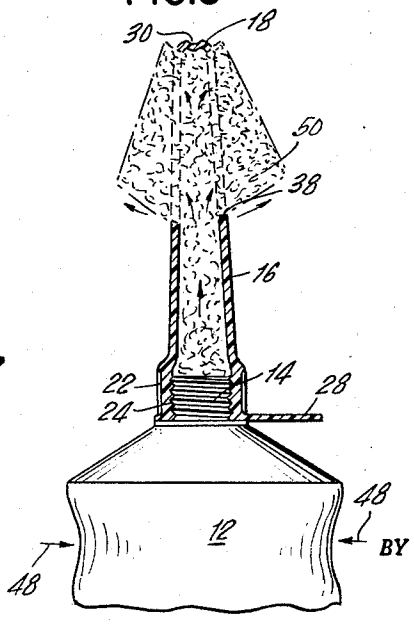


FIG. 6

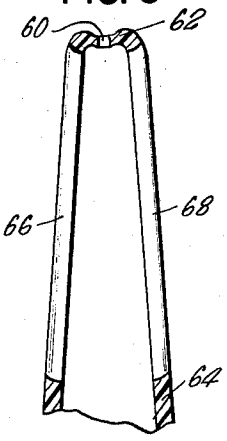
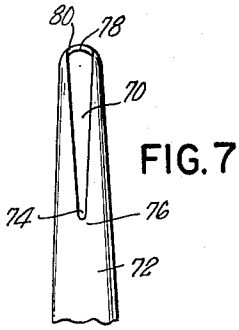


FIG. 7



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DISPENSER

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6 Claims. (Cl. 128—261)

This invention relates to a device for dispensing paste material, and more particularly to a dispenser adapted to be secured on the neck of a tube containing therapeutic medicament and inserted into a body cavity so as to enable the application of the medication.

In the past, medicament applicators or dispensers have been available which include a tapered body provided with a series of perforations therein through which the paste-like medication may be squeezed from a tube or other similar squeezable container. It is relatively expensive to manufacture this type of a dispenser in that the apertures in the tapered body of the dispenser must be punched into the body in a separate operation. Otherwise an expensive and time consuming molding procedure must be employed in which sliding pins are cammed into and out of the mold cavity which reduces the number of dispensers which can be molded on a given machine during a predetermined period of time.

It is an object of the present invention to provide a dispenser for paste material which is relatively inexpensive to manufacture and convenient for mass production manufacture by molding operation.

A further object of the present invention is to provide a dispenser for paste materials which will provide for application of a relatively thin film of a paste-like medication over the portion of the body cavity to be treated thereby assuring a relatively large area application and effective use of the medication.

When medication is forced into a dispenser of the type employed in this invention, as the medication progresses along the length of the dispenser and the pressure thereon will be decreased in that some of the medication will be forced or squeezed through the openings in the end of the tapered body of the dispenser near the tube. Thus, in the past most of the material has been dispensed through the openings more closely adjacent the tube or container end of the dispenser than at the remote or far end thereof.

As a feature of the present invention, tapered openings are provided in the body of the dispenser for assuring that substantially equal amounts of the medication will be applied in a sheet-like form along the substantial area of the body cavity being treated.

Prior dispensers usually employ relatively small punched out holes or apertures in the tapered body and accordingly various foreign matter in the body cavity under treatment often plug or fill these holes and require the careful cleaning of the dispenser prior to further use. Because of the size of these holes, it is often difficult to properly clean the dispenser. Use of the elongated slot or slots in accordance with this invention overcomes this disadvantage and renders the dispenser more easily cleanable.

As a further feature of the present invention, the elongated slots in the body of the dispenser open into the front end wall of the body of the dispenser thereby enabling the application of material forwardly or axially of the dispenser without the necessity of additionally forming a central opening in the front end wall. However, a central opening can be formed in the front end wall for further application of the desired medication forwardly and axially of the dispenser.

Still further objects and features of the invention reside in the provision of a dispenser for use in combination with a squeezable tube or other containers having therein

a quantity of paste material for insertion into the rectum or other body cavity for treatment of hemorrhoids and various other disorders, which dispenser is simple in construction, capable of being easily manufactured out of various plastics, such as commercially available polystyrene, polyethylene, polyvinyl chloride, and the like, and which is relatively inexpensive to manufacture thereby permitting wide use and distribution.

The above brief description, as well as further objects, features and advantages of the present invention will be more fully appreciated by reference to the following detailed description of an illustrative embodiment according to the present invention, when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is an elevational view of a dispenser embodying features of the present invention shown in position for engagement on the threaded neck of a squeezeable tube or container;

FIG. 2 is a vertical sectional view of the dispenser shown secured on the threaded neck of the tube;

FIG. 3 is a rear end elevational view of the dispenser taken along the plane of line 3—3 in FIG. 1;

FIG. 4 is a sectional detailed view taken along the plane of line 4—4 in FIG. 2, illustrating the transverse cross sectional shape of the dispenser.

FIG. 5 is a sectional view similar to FIG. 2, but illustrating the manner in which the dispenser directs the paste-like material in films or sheets;

FIG. 6 is a sectional detail view on an enlarged scale of a modified form of the invention employing a central dispensing opening in the front end wall; and

FIG. 7 is a partial elevational view of a further modified form of dispenser in accordance with the invention.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, and with initial attention directed to FIGS. 1 through 4, the reference numeral **10** generally designates a dispenser embodying features of the present invention which is adapted to be utilized in combination with a squeezable container **12**. The squeezable container **12** is in the form of a tube or other similar type of container and has a threaded neck **14** through which the paste-like material in the container **12** is adapted to be dispensed by squeezing the container **12**.

The dispenser **10** includes a tapered body **16** which is preferably molded of a synthetic plastic material, such as polyethelene. Of course, other material such as polyvinyl chloride or polystyrene may be used, but it has been found that polyethelene has requisite flexibility and may be formed either translucent or transparent so that the amount of paste-like material within the dispenser **10** can be readily viewed. The body **16** is of a conical shape and tapers towards a preferably rounded front end wall **18** from a relatively wider rear end **20** which is provided with somewhat thickened walls providing a collar **22** which is internally threaded at **24**. Preferably, the outer periphery of the collar **22** is knurled or provided with suitable thumb grooves **26** therein for facilitating the grasping and rotation of the dispenser **10**. Integrally with the collar **24** of the body **16** is a handle **28** which will enable the dispenser **10** to be easily rotated on and off the threaded neck **14** of the container **12**.

The body **16** tapers from its widest portion adjacent the collar **22** towards the front end wall **18** so as to be narrowest adjacent the front end wall **18**. The front end wall may be provided with a depression **30** therein, or alternatively, as shown in the embodiment of FIG. 6 may be provided with a central dispensing opening **60**.

A plurality of elongated relatively narrow slots **32**, **34** and **36** are molded in the tapered body **16** and extend from about a mid-point **38** of the body **16** to the front

end wall 18. In fact, and as can be seen best in FIG. 4, the slots 32, 34, preferably extend through spaced circumferential portions of the front end wall 18 to form front-end openings 40, 42 and 44 which communicate with the respective slots 32, 34 and 36.

As can be seen in FIG. 5, when the tubular container 12 is squeezed by applying pressure thereon, such as is indicated by the arrows 48, the paste-like material 50 is squeezed out of the neck 14 of the container 12 and into the tapered body 16 where it passes radially outwardly of the slots 32, 34 and 36 and forwardly of the body 16 through the front-end openings 40, 42 and 44. The closest to the mid-point 38 or trailing ends of the slots 32, 34, 36 than the material is, the greater the amount of material would be normally dispensed; and progressively less material is dispensed towards the front ends of the slots 32, 34, 36.

In order to assure that sufficient paste-like material will pass forwardly of the dispenser, a modified form of the invention may be employed as shown in FIG. 6 in which the central dispensing opening 60 is formed in the end wall 62 of the body 64, the body being provided with suitable slots as at 66, 68, etc. Alternatively, slots 70 of the configuration shown in FIG. 7 may be provided in the tapered dispenser body 72 which slots 70 are formed in the tapered body 72 during the molding thereof. The slots 70 are tapered inversely with respect to the taper on the body 72 so that the narrowest portion 74 of the slot 70 is at the trailing end adjacent the mid-point 76 of the body 72 while the widest portion 78 is at the leading end open through the front end wall 80 of the body 72.

As can be readily understood in the embodiment of FIG. 7, because the opening is greatest at the front end wall 80, paste-like material may be delivered in a substantially equal amount along the length of the slots 70 due to the fact that even though the pressure is reduced adjacent the end wall, more material can be fed at this point due to the increased width of the slot or slots.

From a consideration of the foregoing illustrative embodiments, it will be appreciated that the present invention provides an improved dispenser which is economical to manufacture and has the previously mentioned advantages over prior art devices.

One further advantage of this slotted type of dispenser over dispensers having a series of holes or apertures therein is that the paste-like material is fed in annularly spaced sheets or films which will substantially cover the entire length of the slotted portions of the dispenser body thereby providing more complete coverage for the effected areas onto which the paste-like material is being dispensed. Further, rotation of the dispenser will cause a wiping action and ensure substantially uniform application over the entire surfaces being treated.

A latitude of modification, substitution and change is intended in the foregoing disclosure and in some instances some features of the invention will be used without the use of other corresponding features. Accordingly, the claims herein should be construed broadly and in a manner consistent with the scope of the invention.

What I claim is:

1. A dispenser for use with a squeezable container of paste material comprising a hollow elongated tapered body having a front end wall at one end thereof and having an entry opening at the other end thereof, means at said other end for attaching said body to a container, said body having a plurality of annularly spaced elongated slots therein, said slots being tapered so as to be widest adjacent said front end wall.

2. A dispenser of molded plastic material comprising a hollow elongated conical body for insertion into a body cavity, threaded means at one end of said body for threadedly attaching said body to a container of paste material, means integrally formed with said body and extending normal thereto for facilitating rotation of said dispenser relative to a container to threadedly attach and detach said dispenser, said body having a plurality of annularly spaced elongated slots therein, said slots being tapered so as to be widest at the narrowmost part of said body.

3. A dispenser for use with a squeezable container of paste material comprising a hollow elongated tapered body having a front end wall at one end thereof and having an entry opening at the other end thereof, means at said other end for attaching said body to a container, said body having a plurality of annularly spaced elongated slots therein, said slots extending through said front end wall, said slots being tapered so as to be widest adjacent said front end wall.

4. A dispenser for use with a squeezable container of paste material comprising a hollow elongated body of molded plastic material, said body having an open rear end and a front end wall, said body being tapered and narrowing from said rear end toward said front end wall, means at said rear end for attaching said body to a container, said body having a plurality of annularly spaced elongated slots therein, said slots extending substantially half the length of said body and being disposed adjacent said front end wall.

5. A dispenser for use with a squeezable container of paste material comprising a hollow elongated body of molded plastic material, said body having an open rear end and a front end wall, said body being tapered and narrowing from said rear end toward said front end wall, means at said rear end for attaching said body to a container, said body having a plurality of annularly spaced elongated slots therein, said slots extending substantially half the length of said body and being disposed adjacent said front end wall, said slots extending through said front end wall.

6. A dispenser for paste material comprising a squeezable container, a hollow elongated conical body for insertion into a body cavity, threaded means at one end of said body for threadedly attaching said body to said container, said body having a front end wall and being narrowmost at said front end wall, said body having a plurality of annularly spaced elongated slots therein, said slots extending substantially half the length of said body and extending through said front end wall, said slots being tapered so as to be widest at the narrowmost part of said body.

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