United States Patent

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[54] **DISPENSING CONTAINER**
10 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **401/75**
[51] **Int. Cl.** **A46d 40/06**
[50] **Field of Search** 401/68–75, 175

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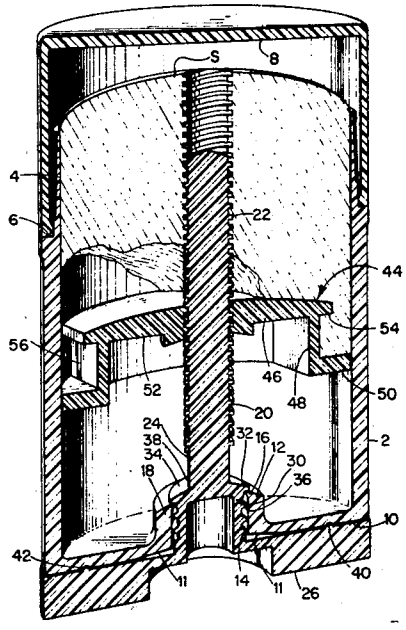
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ABSTRACT: A dispensing container for cosmetics and toilet preparations of the type wherein the preparation is extruded in stick form under the influence of a screw-driven follower.



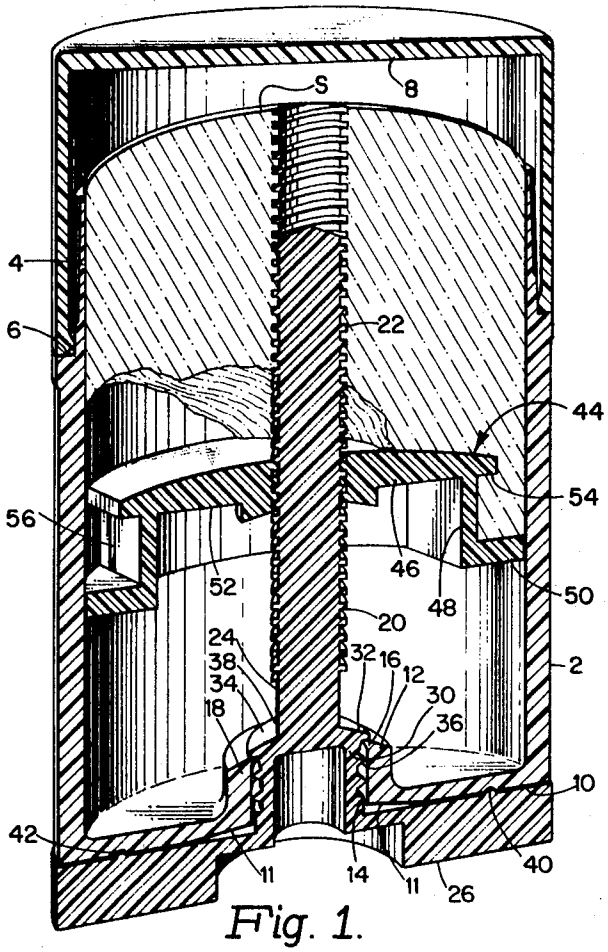


Fig. 1.

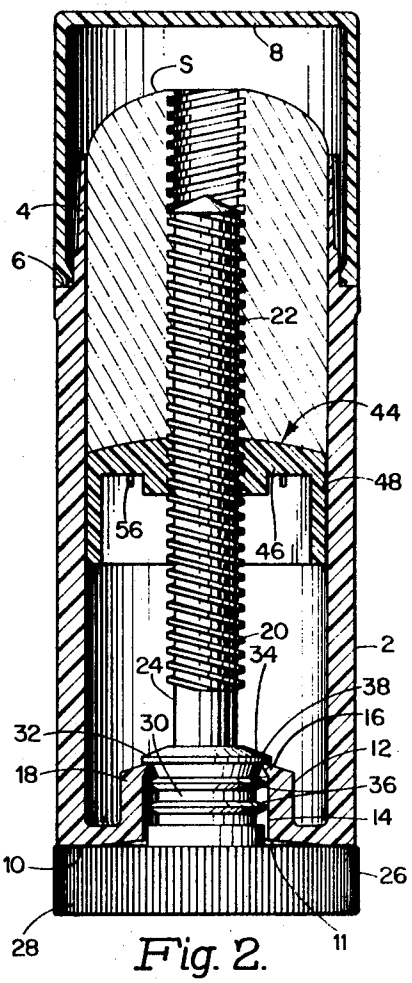


Fig. 2.

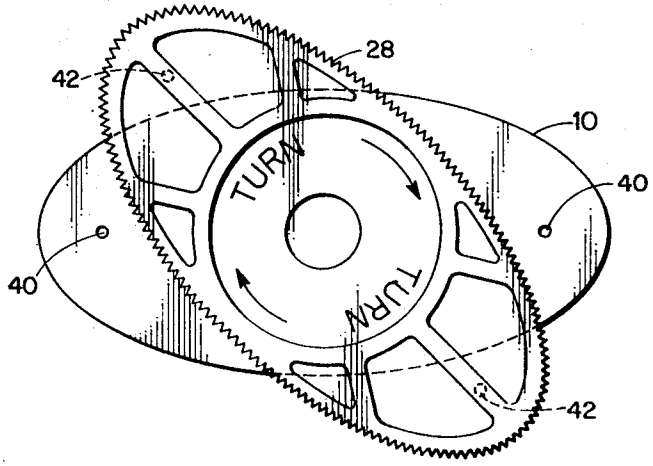


Fig. 3.

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DISPENSING CONTAINER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to containers and is directed more particularly to dispensing containers having means for extruding contents in stick form.

2. Description of the Prior Art

Cosmetic and toilet preparations often comprise camphor ice or cerates containing volatile perfumes. Such preparations are extremely susceptible to evaporation if not effectively sealed from the atmosphere. In the manufacture of dispensing containers for such preparations in stick form, elaborate and costly measures have been taken to inhibit evaporation. Particular care has been exercised in the mounting of a drive means for the stick contents and connecting the drive means to an outside actuating means. The mountings must necessarily be such as to insure maintenance of a seal between the container contents and the atmosphere, while not interferring with the easy operation of the actuating and drive means. In the case of screw-type drive means actuated by an exterior knob, it is necessary that the mounting permit ready rotation of the drive means while at the same time maintaining the required seal. It is desirable that the seal be relatively noncomplex and inexpensive.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a dispensing container of the screw-driven type which can be readily and inexpensively manufactured and assembled and which provides particularly effective protection for the product against contamination and loss by evaporation.

It is a further object of the invention to provide such a container which is relatively easy to operate.

With the above and other objects in view, as will hereinafter appear, a feature of the present invention is the provision in a container of the type above referred to of a tubular casing having a cylindrical reentrant wall at its base, a longitudinally movable screw-operated follower disposed in the tubular casing, and a screw member connected to an external knob mounted on one end of the casing. The screw member is characterized by a sealing portion comprising spaced, relatively thin, circular ribs which engage the cylindrical reentrant wall and act as sealing baffles, as well as bearing elements or journals for the screw member.

The above and other features of the invention, including various novel details of construction and combinations of parts, will now be more particularly described with reference to the accompanying drawings and pointed out in the claims. It will be understood that the container embodying the invention is shown by way of illustration only and not as a limitation of the invention. The principles and features of this invention may be employed in various and numerous embodiments without departing from the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Reference is made to the accompanying drawings in which there is shown an illustrative embodiment of the invention from which its novel features and advantages will be apparent.

FIG. 1 is a perspective, generally front sectional, view of one form of container illustrative of an embodiment of the invention;

FIG. 2 is a side sectional view of the container shown in FIG. 1; and

FIG. 3 is a bottom plan view of the container shown in FIGS. 1 and 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1 and 2, it will be seen that the illustrative container includes a hollow casing body 2, which may be oval in cross section. It is desirable that the casing 2 be of a design suitable for molding in a single operation from

synthetic resin, such as for example, polyvinylchloride, polyethylene, or other synthetic resin. The casing 2 is preferably of relatively rigid material. At its upper end 4, the casing 2 is reduced in thickness to provide a shoulder 6 for receiving a cap 8 which is also of oval cross section and is shaped to fit snugly upon the reduced end 4 of the casing whereby to enclose the open end thereof.

At the bottom end 10 of the casing 2 there is formed a cylindrical reentrant wall 12 bounding a cylindrical opening 14 in the casing and having a beveled inwardly turned rim 16 at its upper end 18. The cylindrical opening 14 is adapted to receive a screw element or spindle 20. The bottom 10 of the casing 2 is provided with an annular recess 11 which facilitates insertion of the spindle 20, as will be described below.

The spindle 20 is of relatively soft material and has an upper threaded portion 22 and terminates at one end with an external knob 26 having knurled edges 28 to facilitate gripping. Between the knob 26 and the threaded portion 22 of the screw spindle 20 there is disposed a smooth-walled portion 24, the purpose of which will be described below, and a sealing portion 30 having a circular flange 32 on its upper end 34, the flange 32 being of sufficient diameter to overlie and cover the upper end of the opening 14, as well as a portion of the rim 16. The sealing portion 30 is provided with a series of relatively thin circular ribs 36. The ribs 36 are formed of a resilient material such as, for example, polyethylene, and are so disposed as to engage the interior of the cylindrical reentrant wall 12. The diameter of the ribs 36 is somewhat larger than the diameter of the cylindrical opening 14 so that when the ribs 36 and reentrant wall 12 are in engaging relationship a tight seal is formed against evaporation and contamination of a product disposed in the container. The circular ribs 36 also serve as journals for the rotation of the spindle 20 within the reentrant wall 12. Inasmuch as the ribs 36 are relatively thin and engage only a portion of the reentrant wall 12, and because of the somewhat larger diameter of the ribs, relative to the inside diameter of the reentrant wall, the ribs act as effective seals while creating a minimum amount of friction so that the spindle 20 readily may be rotated with ease.

The spindle 20 may be molded as an integral unit from the same resilient material as the circular ribs 36 and inserted as a unit through the bottom of the cylindrical opening 14. The upper surface 38 of the circular flange 32 is beveled to facilitate its passage inwardly of the container through the inturned rim 16. The circular flange 32 is positioned on the sealing portion 30 sufficiently removed from the knob 26 so as to rotatably engage the upper end 18 of the cylindrical reentrant wall 12 and thereby hold the knob 26 firmly against the bottom 10 of the casing 2. The annular recess 11 on the bottom 10 of the casing 2 permits deflection of the central portion of the relatively resilient knob 26 to permit forcing of the flange 32 beyond the rim 16 during assembly. After the flange 32 has passed inwardly of the rim 16, pressure is released on the knob 26 which returns to the form shown in FIG. 1, thereby exercising a downward pressure on the flange 32 against the rim 16, effecting a tight seal. The bottom 10 of the casing 2 is provided with a pair of shallow sockets 40 disposed to receive small rounded bosses 42 projecting from the knob 26. The shallow sockets 40 and the complementarily shaped bosses 42 serve to hold the knob 26 in an initial position registering angularly with the bottom 10 of the casing 2.

Referring to FIG. 3, the knob 26 will be seen having been turned about 40° in a clockwise direction from the above-described initial position. Inasmuch as the contour of the knob 26 conforms to that of the casing 2, a ready means is provided for gauging the dispension of a preferred amount of the product by rotating the knob 26 in half or full turns until the knob again registers with the contours of the casing.

Disposed upon the threaded portion 22 of the spindle 20 is a follower 44 comprising a circular platform 46. Integral with the platform 46 is a downwardly extending circular apron 48 provided with an outwardly extending flange 50. The flange 50 is oval in contour and fits within the oval casing 2, being

held thereby against rotation but being free to move longitudinally upon rotation of the spindle **20**. The positioning of the circular apron **48** on the undersurface **52** of the platform **46** provides a locking flange **54** which serves to lock the packaged material onto the platform **46**.

A pair of air vents **56** may be provided in the circular apron **48** to permit passage of air therethrough and thereby inhibit trapping of air under the follower **44** when the follower is lowered for filling. The vents **56** are of relatively small size so that no appreciable amount of material seeps through them during the filling operation.

If it is desired that the casing **2** be cylindrical, rather than oval, suitable longitudinal ribs (not shown) may be provided on the inner walls of the casing, which ribs engage slots (not shown) placed in the follower **44** to prevent rotation of the follower when the screw spindle **20** is rotated.

In filling the device herein shown, the follower **44** is brought to the bottom of the casing and the material of the stick S is poured in liquid condition into the open end, or upper end **4**, of the casing and allowed to harden in the mould formed by the casing and the follower **44**. As the stick S is used, the knob **26** may be rotated to elevate the follower **44** and correspondingly advance the stick. After use, the stick S may be retracted by rotation of the knob in the opposite direction, the stick S being interlocked with the follower **44** beneath the locking flange **54**. When the follower **44** is brought to the bottom of the casing, the follower is disposed upon the smooth-walled portion **24** of the spindle **20**. If the knob **26** is inadvertently turned into the wrong direction no damage is inflicted upon the threads of the follower. The follower **44** is of relatively hard material and the spindle **20** of relatively soft material so that when the knob is turned in the correct direction, the threads of the follower **44** advance upon the spindle **20** and raise the follower until the internal threads of the follower engage the external threads of the threaded portion **22** of the spindle **20**. Thus, there is provided a feature which prevents stripping of the threads of the spindle member **20**.

It is to be understood that the present invention is by no means limited to the particular construction herein disclosed and/or shown in the drawings, but also comprises any modifications or equivalents within the scope of the disclosure.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A dispenser comprising a tubular casing, a cylindrical reentrant wall integral with a first end of said casing and extending from said end inwardly of said casing, said wall defining at one end thereof an opening through said first end, a rotatable spindle-sealing portion disposed in said cylindrical wall, said wall having a smooth internal surface and said sealing portion being nonthreaded, said sealing portion including circular rib means extending radially outwardly from said spindle and engaging said smooth interior surface of said cylindrical wall, whereby to seal said opening.

2. The invention according to claim **1** in which said circular rib means comprises resilient means.

3. The invention according to claim **1** in which said circular rib means comprises a plurality of circular ribs.

4. The invention according to claim **3** in which said circular ribs are resilient.

5. The invention according to claim **4** in which the diameter of each circular rib is, prior to assembly of said container, larger than the diameter of said opening.

6. A dispenser comprising a tubular casing, a cylindrical reentrant wall integral with a first end of said casing and extending inwardly of said casing, said wall defining an opening, a rotatable spindle received by said opening, a sealing portion of said spindle including a flexible circular flange which covers and closes the inwardly extending free end of said cylindrical wall, said first end of said casing having an annular recess adjacent said reentrant wall, the depth of said recess being sufficient to permit passage of said circular flange through said cylindrical wall to engage said free end during assembly of said dispenser.

7. The invention according to claim **6** in which said free end of said wall has a radially inwardly turned rim.

8. The invention according to claim **7** in which the sealing portion includes a circular flange which overlies said rim on said free end of said reentrant wall, whereby to close one end of said opening.

9. A dispenser comprising a tubular casing, a cylindrical reentrant wall integral with a first end of said casing, said wall defining an opening, a rotatable spindle received by said opening, a portion of said spindle being threaded, a follower mounted on said threaded portion of said spindle and movable axially of said spindle responsive to rotation of said spindle, a portion of said spindle being nonthreaded and being adjacent said threaded portion, said nonthreaded portion being cylindrical in configuration and having a diameter substantially equal to the inside diameter of said threaded portion, said nonthreaded portion being adapted to operatively receive said follower and permit movement of said follower from said nonthreaded portion to said threaded portion.

10. The invention according to claim **9** in which said spindle is of softer material than said follower and said follower is threaded internally.