PATENT SPECIFICATION (11) 1588406

1588406

(21) Application No. 44384/76 (22) Filed 26 Oct. 1976 (19)

(23) Complete Specification filed 20 Oct. 1977

(44) Complete Specification published 23 April 1981

(51) INT. CL.³ B65D 83/00

(52) Index at acceptance

F1R 15B1

(72) Inventor ROBERT EDWARD NEWELL

(54) OINTMENT CONTAINER

(71) We, GLAXO LABORATORIES LIMITED, a British company, of Greenford, Middlesex, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a container or dispenser for pasty substances, such as ointments, gels, creams or some liquids of suitable viscosity. For convenience of description, such substances are hereinafter referred to as "creams".

It is commonplace to pack creams for topical use in collapsible tubes which also serve as dispensers. Such tubes have a number of disadvantages. Thus, it is difficult or impossible to dispense the entire contents of such a tube. This leads to a waste of what is often an expensive substance. It is inherent in the design of such tubes that for a given quantity of cream to be packed a relatively long tube is required for any given diameter, the total tube volume being unusable. This in turn means that a relatively large space is required for the packing, storing or transport of quantities of tubes filled with creams. Finally, it is usually necessary to make collapsible tubes of expensive materials such as aluminium or tin because less expensive materials such as the soft plastics are for commercial and/or technical reasons often not suitable for use as collapsible tubes for creams.

An object of the present invention is to provide a container which overcomes these disadvantages. Accordingly, the invention provides a container or dispenser for creams comprising a body which has at a forward end a dispensing nozzle communicating with the interior of the body and has at the rear end, an opening through which a finger of a user of the container can be inserted; and a dispensing plunger which is slidable inside the body and is accessible through the rear end of the body to enable the plunger to be urged towards the forward end of the body and discharge cream through the nozzle, the plunger having a forwardly extending flexible sealing collar having an outer periphery which is greater than that of the outside of the plunger whereby the collar makes a sliding sealing fit with the inside of the body, the collar having a forward portion the generatrix of which is parallel to the axis of the body, the said plunger also having means disposed to the rear of the collar and engageable with the inside of the body to assist in preventing the plunger tilting with respect to the axis of the body when pressure is applied to the plunger.

A preferred embodiment of the invention is illustrated in the accompanying drawings in which:

Figure 1 is a longitudinal section of a dispensing container constructed according to the invention,

Figure 2 is an exploded view,

Figure 3 is a transverse section through a plunger of the container, and

Figure 4 is a scrap view of a detail.

In the illustrated embodiment of the invention, a combined container and dispenser for creams comprises a body of cylindrical cross-section. Although, as illustrated, the body is preferably of cylindrical cross-section it can be of any other convenient shape such as of elliptical or substantially rectangular cross-section. The body is conveniently made as an injection moulding of a suitable plastics material such as polypropylene. The area of the cross-section of the body may be of any convenient size, provided it is such that a finger of a person using the container can be inserted in the body. It has, therefore, been established that a convenient diameter of a cylindrical body is 30 mm. The body has a generally conical forward end with an outlet nozzle 2 leading forwards out of that end of the body. The nozzle communicates with the interior of the body. The nozzle has an external screw thread 3. A closure cap 4 is screwed on the nozzle 2 and encloses the entire forward or nozzle end of the body. As an alternative, the closure cap may be a snap fit on the nozzle or body.

A plug, plunger or piston 5, hereinafter referred to as a "plunger" is arranged inside the body 1. This plunger 5 is of a shape which is complimentary to that of the inter-

ior of the body 1 but the area of the cross-section of the plunger is slightly smaller than the area of the cross-section of the body. The plunger is conveniently made as an injection moulding of a plastics material such as polypropylene or polyethylene. A cream to be dispensed is arranged inside the forward portion of the body between the forward end of the plunger and the rear end of the nozzle end of the body. To facilitate insertion of the plunger 5 in the body 1, the open end of the body has an internal angled lead-in portion 13. The forward face 6 of the plunger 5 has a conicity complimentary to that of the interior surface of the forward end of the body. The plunger is hollow and has a cylindrical skirt 7. Extending axially within the skirt 7 is a pressure member in the form of a tube 8 or a rod. Thus, pressure applied to the plunger by pressing a finger on the tube 8 forces cream out of the body through the nozzle 2, provided, of course, that the cap 4 has been removed. When pressure on the plunger is released, the plunger 5 will remain in the body 1 at the position it occupies when pressure is released.

A suitable sealing means must be provided between the forward space of the plunger and the inside of the body in order to prevent egress of cream when the plunger 5 is moved towards the nozzle 3. Such sealing means is provided by a flexible collar 9 which extends forwards from the skirt 7 of the plunger. The outer periphery of this collar 9 is greater than that of the outside of the plunger itself and is greater than the cross-section of the interior of the body 1 so that the collar 9 makes a sealing and sliding fit with the interior of the body. The collar 9 has sufficient resilience to ensure that it makes a sealing fit with the interior of the body. The collar 9 has a dual function as it provides an airtight seal when cream is not being dispensed from the container and it also prevents the creep of cream past the plunger 5 when it is moved to discharge cream.

Means are provided to prevent or reduce lateral or tilting movement of the plunger with respect to the axis of the body because such movement could impair the efficiency of the seal. Such means is provided by a "flat" portion 10 illustrated to an exagerated scale in Figure 4. This flat is a portion of the plunger the generatrix of the shape of which is parallel with the axis of the plunger and body. Additionally, ribs 11 run lengthwise of the surface of the skirt 7 of the plunger 5 to assist in preventing tilt of the plunger. Alternatively, ribs can be provided to run peripherally round the external surface of the plunger or there can be protuberances on the outside of the plunger.

A tamper-indicating seal 12 is provided at the rear end of the body, although such a seal is not essential. This seal is, conveniently, a frangible thin sheet of aluminium foil which covers the rear end of the body and makes it impossible to press on the plunger to dispense cream from the container without first breaking the seal. Thus, it is possible to see at a glance whether or not the container has already been used.

A flexible foam or porous pad can be fitted to the nozzle so that the cream dispensed from the interior of the body is dispensed through the pad. In another modification an elongated tube can be fitted to the nozzle 3 to increase its length or a blunt blade or spatula can be fitted to the nozzle to assist in distributing cream over an area of a patient using a dispenser. If desired a shaped spout can be fitted to the nozzle.

WHAT WE CLAIM IS:—

1. A container or dispenser for creams comprising a body which has, at a forward end, a dispensing nozzle communicating with the interior of the body and has, at the rear end, an opening through which a finger of a user of the container can be inserted; and a dispensing plunger which is slidable inside the body and is accessible through the rear end of the body to enable the plunger to be urged towards the forward end of the body and discharge cream through the nozzle, the plunger having a forwardly extending flexible sealing collar having an outer periphery which is greater than that of the outside of the plunger whereby the collar makes a sliding sealing fit with the inside of the body, the collar having a forward portion the generatrix of which is parallel to the axis of the body, the said plunger also having means disposed to the rear of the collar and engageable with the inside of the body to assist in preventing the plunger tilting with respect to the axis of the body when pressure is applied to the plunger.

2. A container as claimed in claim 1 wherein the plunger is hollow and includes a skirt running rearwards from the working surface of the plunger, a plurality of ribs running lengthwise of the skirt to assist in preventing the plunger tilting with respect to the axis of the body when pressure is applied to the plunger.

3. A container as claimed in either preceding claim, wherein the plunger has a pressure member in the form of a tube or rod positioned axially within the skirt

4. A container as claimed in any one of the preceding claims having a removable screw cap to cover the nozzle end of the container.

5. A container as claimed in any one of the preceding claims wherein the rear-end of the body is closed by a frangible cover whereby access to the plunger can only be obtained by breaking the cover.

6. A container or dispenser for creams

substantially as described with reference to the accompanying drawings.

ELKINGTON AND FIFE,
Chartered Patent Agents,
High Holborn House,
52—54 High Holborn,
London WC1V 6SH.
Agents for the Applicants.

Printed for Her Majesty's Stationery Office by Burgess & Son (Abingdon) Ltd.—1981. Published at The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

1588406 COMPLETE SPECIFICATION

2 SHEETS *This drawing is a reproduction of the Original on a reduced scale*

Sheet 1

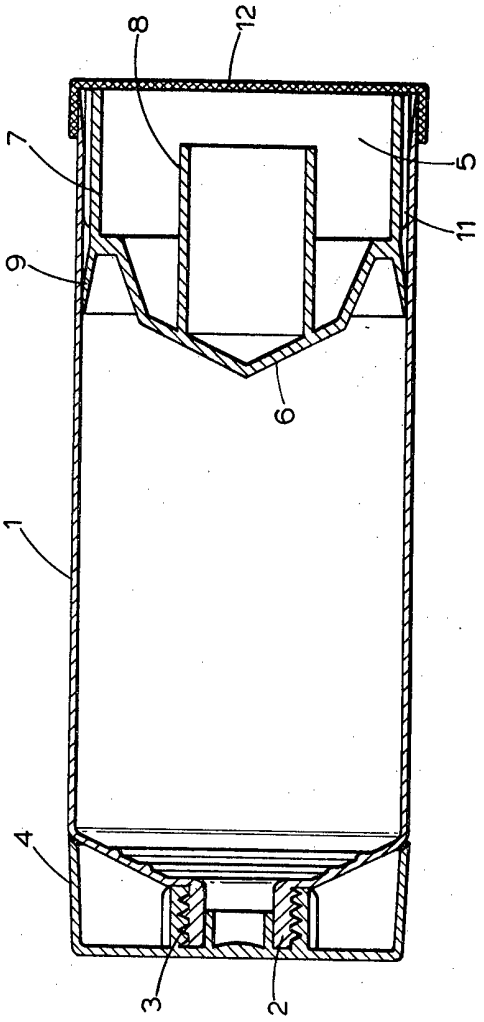

Fig. 1.

1588406 COMPLETE SPECIFICATION
2 SHEETS This drawing is a reproduction of the Original on a reduced scale
Sheet 2

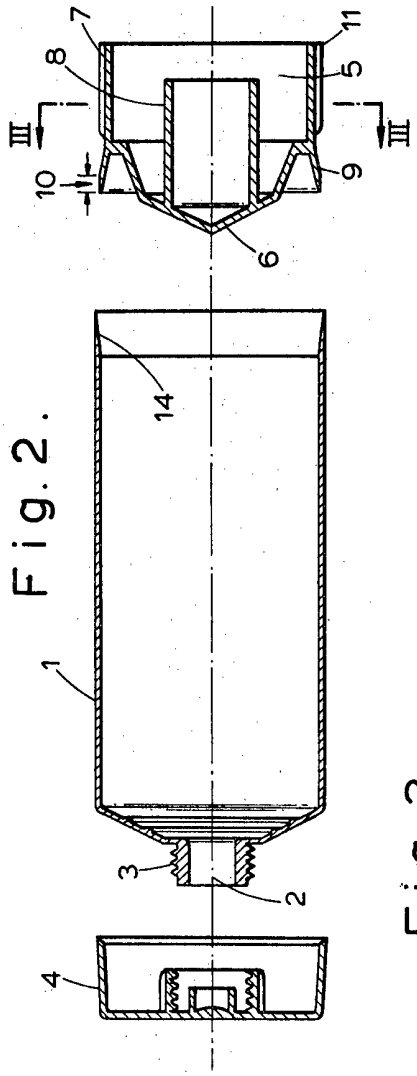

Fig. 2.

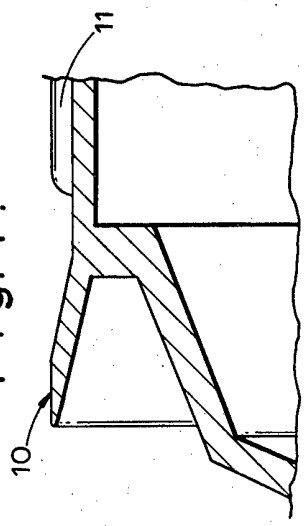

Fig. 4.

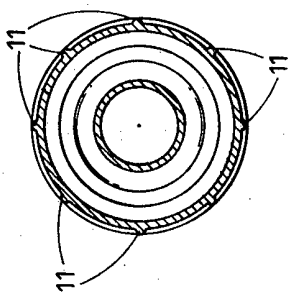

Fig. 3.