Jan. 20, 1959 H. D. FORSYTH 2,869,545

PACKAGE

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Fig. 1.



Fig. 3.

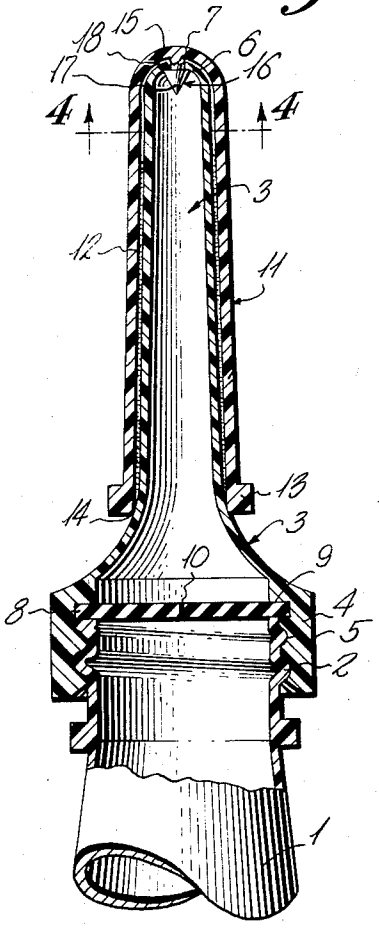


Fig. 4.

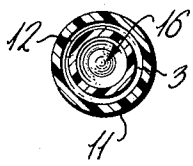
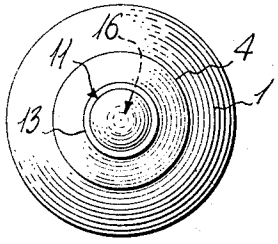


Fig. 2.



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PACKAGE

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This invention relates to packages for medicinal products to be used within a body cavity and, therefore, requiring the use of an elongated nozzle, or tip, and particularly to packages adapted for enema use.

Medicinal preparations packaged in single use, or dose, quantities have come into widespread use. Where the preparation is to be used in a body cavity, it is customary to package it in a bottle or squeeze type tube and use a conventional screw cap for sealing. Packed with the bottle will be an applicator tip and a small quantity of lubricant for the tip. This requires the packaging of several items for shipment, and excessive handling of the several parts when contents of the package are to be used.

The principal object of the present invention is to provide a medicinal package for body cavity use wherein the package is designed for shipment with the applicator nozzle, or tip, in place, protected by an outer cover or sheath.

Another object is to provide a package of this kind having a valve within the applicator tip for controlling the flow of material from the package, and a primary closure seal made with the tip itself.

A further object is the provision of such a package having the lubricant upon the applicator when the package is purchased making it unnecessary to handle the tip at any time.

Other objects of the invention will become apparent from the following description of one practical embodiment thereof when taken in conjunction with the drawings which accompany, and form part of, this specification.

In the drawings:

Figure 1 is a side elevation of an enema package embodying the principles of the present invention;

Figure 2 is a top plan view of the package;

Figure 3 is a vertical section through the applicator tip with its seal and the upper part of the bottle, shown on an enlarged scale and taken on the line 3—3 of Figure 1; and,

Figure 4 is a horizontal section through the applicator tip and its sealing sheath, taken on the line 4—4 of Figure 3.

In general, the invention consists in a container having an elongated applicator tip on it, with lubricant on the tip and a sheath sealing off the tip and protecting the lubricated portion of the applicator.

Referring to the drawings in detail, the container is shown as a thin-walled, polyethylene bottle 1, which is flexible and can be compressed to expel the contents. The neck of the bottle is threaded, as at 2, to receive an applicator tip 3. The tip has an enlarged base, or cap, end 4 which is internally threaded, as at 5, to screw upon the neck of the bottle 1. The tip is hollow and tapers outwardly to a crowned end 6, which is apertured centrally at 7 on the central axis of the tubular tip to permit exit of the contents of the bottle. The tip is

also of polyethylene, somewhat stiffer than the bottle walls, yet having some flexibility.

The base 4 of the applicator is recessed as at 8 to receive a flexible disk valve 9. The valve seats in the recess and upon the end of the bottle neck, and is clamped between the applicator and bottle neck when the applicator is in place. Valve disk 9 has a diametrical slit 10 which extends across the disk, but stops short of the edge on either side. This slit divides the central portion of the disk into two opposed lips which may flex outwardly under the force of the contents in the bottle when the bottle is compressed and permit the contents to flow out into the applicator and through the aperture 7. The disk is formed of rubber or other suitable flexible and resilient material which will spring back to its original plane after being flexed and be self-closing. The disk valve also serves to prevent leakage of the contents of the package after the primary seal is broken and the bottle is inverted for use. It also prevents sucking back of the liquid from the body cavity after the deflated bottle is released.

When the applicator is in place, it will be coated near the tip with a suitable lubricant, such as petroleum jelly, and a sealing sheath 11 slipped over the end. In actual practice, a small amount of the lubricant will be placed in the sheath and when the sheath is put in place the lubricant will coat the end and adjacent portions of the tip. The sheath will also be of polyethylene, or similar material, and have approximately the same degree of stiffness as the applicator. The sheath will be of similar shape to the projecting end of the applicator and of slightly larger diameter, so that when it slips over the applicator tip there will be a smaller annular chamber 12 formed between the tip and the sheath in which the lubricant on the tip will be housed. The lower end of the sheath is provided with a relatively stiff annular flange 13 which serves to rigidify the open end of the sheath. The sheath is of such length that when it is pressed down tightly over the applicator its lower inner edge 14 will contact the tip in the area where it swells outwardly to merge into the base 4 and will form a tight seal around the tip, preventing the escape of the lubricant and keeping air from reaching the lubricant chamber and drying out the lubricant. Thus, the sheath forms with the applicator tip a chamber for the lubricant and seals that chamber from atmosphere.

The upper end of the sheath 11 is crowned at 15 similarly to the crown on the applicator tip. Extending inwardly of the sheath in an axial direction and on the central axis of the sheath is a sealing stud 16. The stud has a conical leading end 17 and converges from the maximum diameter of the conical leading portion upwardly to its juncture with the inner surface of the sheath crown. The upwardly converging portion 18 provides a stopper to seal the aperture 7 in the applicator tip. When the sheath is slipped over the applicator it will slide freely until it is almost seated. The conical end of the sealing stud will fit into the aperture 7 and expand the aperture slightly as it passes through. At about the time that the base of the cone 17 passes through the opening, the lower edge 14 of the sheath will come in contact with the surface of the applicator. Further downward movement will tend to compress the applicator slightly and the resiliency of the material will tend to move the sheath outwardly. However, the base of the cone has at this time passed completely through the opening and the upwardly tapering portion 18 will be in the aperture. This tendency of the applicator to move the sheath upwardly will hold the sealing stud in tight sealing contact with the aperture and thus form a very effective primary seal for the package. When the sheath is in place it will hold very tightly and be proof against accidental dislodgement.

When it is desired to use the contents of the package the sheath can be gripped at the annular flange 13 and pressed outwardly. This will cause the base of the cone of the sealing stud to snap through the aperture 7 freeing the sheath for removal from the applicator. The lubricant which has been in the chamber 12 will be in good condition, forming a coating over the surface of the applicator near the top and the package will be ready for use. Pressure on the sides of the bottle will force the liquid through the valve 9 and out through the aperture 7 in the applicator.

The device is adapted to have but a single use and is therefore disposable. Use of a plastic such as polyethylene gives the parts of the package the flexibility which they need and, at the same time, permits very cheap manufacture of the package. It will be readily apparent that the package will be much simpler to use with the applicator and lubricant in place when purchased. The sheath will form a complete seal against leakage of the contents of the bottle and will also protect the lubricant and prevent contact of the applicator with foreign objects prior to the time it is to be used. The new structure will simplify packaging, and materially reduce handling costs.

While in the above one practical embodiment of the invention has been disclosed, it will be understood that the details of structure described and shown are merely by way of illustration and the invention may take other forms within the scope of the appended claims.

What is claimed is:

1. A package for medicinal preparations comprising, a container of flexible material for the preparation to permit compressing to expel the preparation, an elongated applicator of material having some elasticity projecting from the container and having an aperture in its end, a coating of lubricant on the outer surface of said applicator and a removable elongated sheath having a closed end fitting over the applicator with the edge of its open end in sealing contact with the surface of said applicator inwardly of the lubricated area to seal off the lubricated area; said sheath having an inwardly projecting stud fitting into the aperture in said applicator in sealing relation to form a primary closure for said container.

2. A package fo medicinal preparations, as claimed in claim 1, a rubber disk bridging said applicator at its juncture with the container, said disk having a diametral slit to permit the disk to serve as a valve and flex to allow the preparation to flow into the applicator when the container is compressed.

3. A package for medicinal preparations comprising,

a container for the preparation, an elongated applicator having some elasticity projecting from the container and having an aperture in its end, a sheath having a closed end fitting over said applicator and having an inwardly projecting stud extending from the closed end and having at least a part thereof of larger diameter than said aperture to snap into said aperture to provide a primary seal for said container, and a coating of lubricant on the outer end of said applicator, and said sheath having its open end in pressure contact with the surface of said applicator to seal off the lubricated area of said applicator.

4. A package for medicinal preparations, comprising, a container for the preparation, an elongated applicator having some elasticity projecting from the container and having an aperture in its end, a sheath having a closed end fitting over said applicator and having an inwardly projecting stud extending from the closed end and having at least a part thereof of larger diameter than said aperture to snap into said aperture to provide a primary seal for said container, and a flexible disk bridging said applicator at its juncture with the container, said disk having a diametral slit to permit the disk to serve as a valve to control the passage of the medicinal preparation into said applicator.

5. A package for medicinal preparations comprising, a hollow container of flexible material, having an open mouth, an elongated applicator connected to and projecting from the mouth of the container and terminating in a tip having an outlet opening in the end thereof, a removable sheath having a closed end fitting over said applicator, said sheath being of larger diameter than the applicator to provide an annular chamber between the applicator and sheath, means at the closed end of the sheath engageable with the wall of the applicator tip adjacent the outlet opening to seal off the outlet from the chamber and position the sheath concentric to the applicator, lubricant on said applicator within the chamber, and a flexible disk having a diametral slit positioned across the mouth of the container to serve as a valve and flex to open the slit and allow the medicinal preparation to flow into the applicator when the container is compressed.

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