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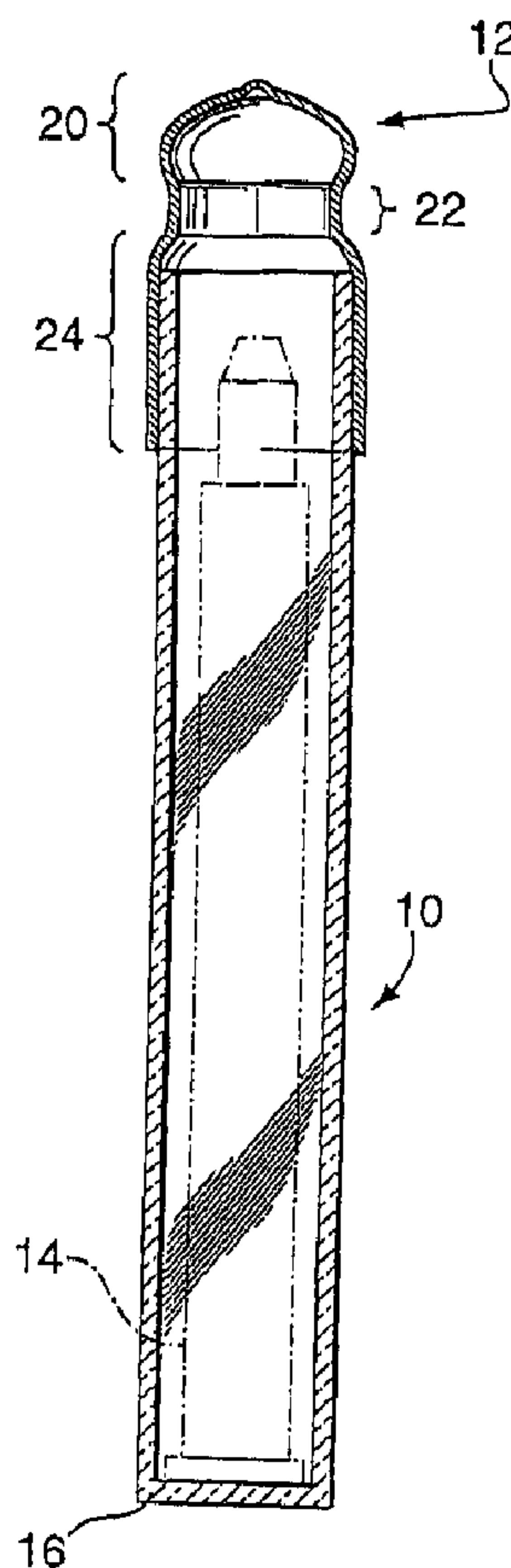
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(54) Titre : CONTENANT PROTECTEUR D'UN INJECTEUR DE DROGUE

(54) Title: PROTECTIVE CONTAINER FOR DRUG INJECTOR



(57) Abrégé/Abstract:

An apparatus for storing a single drug injector such as an Epi-Pen Auto-Injector is disclosed. To prevent damage to the injector, a device according to the present invention can be used to store and or transport the injector. The invention includes a container constructed from a rigid material, and a releasable cap constructed of rubber or similar material having a nipple-like protrusion.

(57) Abrégé(suite)/Abstract(continued):

In order to access the injector, the cap is easily removed by squeezing the releasable cap. In the absence of such squeezing motions, the cap is not easily removed if pulled or twisted.

ABSTRACT

An apparatus for storing a single drug injector such as an Epi-Pen Auto-Injector is disclosed. To prevent damage to the injector, a device according to the present invention can be used to store and or transport the injector. The invention includes a container constructed from a rigid material, and a releasable cap constructed of rubber or similar material having a nipple-like protrusion. In order to access the injector, the cap is easily removed by squeezing the releasable cap. In the absence of such squeezing motions, the cap is not easily removed if pulled or twisted.

PROTECTIVE CONTAINER FOR DRUG INJECTOR

FIELD OF THE INVENTION

The present invention relates to a protective container for a drug injector. More specifically, the present invention relates to a protective container for a drug injector, such as an EpiPen, which is strong and rigid and made of light weight material with a releasable cap member.

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BACKGROUND OF THE INVENTION

U.S. Patent 4,303,171 of December 1, 1981 to Schremmer discloses a closure member for an open-ended container. The closure member includes a finger-grippable guide which protrudes from the top thereof, such that flexing of the guide is sufficient to break the seal of the closure member against the inside wall of the container, allowing the closure member to be removed therefrom.

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U.S. Patent 5,749,496 of May 12, 1998 to DeJonge Sr. et al. discloses a cap closure which includes a non-removable cap that rotates between a closed and open position. To open the cap, two opposing squeeze points on the cap must be inwardly pressed to displace protrusions located on the cap from a track on the neck of the container normally keeping the cap in place.

U.S. Patent 4,394,922 of July 26, 1983 to Wimmer discloses a rubber stopper

device for containers having a plastic pull ring. The ring is raised to an erect position to allow a finger of the user, with a pulling action, to remove the stopper from the container.

Currently, auto drug injectors, such as the EpiPen, are housed in a plastic container. The containers are easily breakable which could result in the auto drug injector no longer being sterile. Further if the casing or container is damaged, the safety cap of the EpiPen could become dislodged which could result in either an untimely discharge of the EpiPen or the inability of the EpiPen to discharge when required. This is particularly true in the case of children who must carry such a device with them at all times; the currently available container is vulnerable to the normal activities of an active child.

There is a need for a durable EpiPen container with a cap which would be easily removable by a child but at the same time would not be readily removed unintentionally.

Summary of the Invention

In accordance with the present invention there is provided a device for containing a drug injector comprising an elongate container adapted to receive a drug injector, the container having a closed end and an opposed open end, and a generally flexible sealing means, the sealing means including a releasable cap adapted for a tight fit over the open end of the container, the cap having a bulb portion wherein compression of the bulb portion permits removal of the cap.

Preferably, the container is made from a rigid material, such as a plastic material. Most desirably, the container is made from a polycarbonate resin, which preferably includes a UV stabilizer. Additionally, the plastic material could include a heat and cold resistant material.

Most preferably the releasable cap portion is made from a flexible material, and desirably includes a bulb portion.

In another aspect of the present invention the flexible material includes a rubberized plastic. Most desirably, the releasable cap is made from polyvinyl chloride.

5 According to one aspect of the present invention, the releasable cap is removable from a sealing position when placed upon the container through manually squeezing the cap thereby applying inward pressure on the upper and medial portions of the cap.

Preferably, the container is about 15 cm in length and has a diameter of about 2.5 cm.

Directional references employed through this specification and claims, such as
10 “upper”, “lower”, “top”, “bottom”, etc. are for convenience of description only. Such terms do not limit the scope of this invention, as it will be understood that the invention may be positioned in any orientation for use.

Brief Description of the Drawings

Having thus generally described the invention, reference will now be made to the
15 accompanying drawings, wherein:

Figure 1 is an elevational view of the container and cap of the present invention;

Figure 2 is a cross sectional view of the container and cap taken along the line 2-2 of Figure 1; and

Figure 3 is a cross sectional view of the container taken along line 3-3 of Figure 1.

Detailed Description of the Preferred Embodiment.

According to a preferred embodiment of the present invention, there is provided a re-usable protective container for a drug injector. As illustrated in Figure 1, reference numeral 10 generally designates an auto drug injector container of the present invention with the releasable cap being generally designated by reference numeral 12. The auto drug injector, for example an EpiPen™ itself is shown in dotted lines and designated generally by reference numeral 14.

10 As shown in Figures 1 and 2, the container 10 is a generally tubular member having a closed bottom 16 and an open top (not shown), and is of a size sufficient to hold and retain an auto drug injector device. The container 10 is of a cylindrical configuration. Most desirably, the dimensions of the tube include an outside diameter of approximately 1" or 2.5 cm and a length of approximately 6" or 15 cm. These sizes may change depending on the proposed application or use of the container.

20 Preferably, the container 10 is comprised of a durable plastics material which is strong, rigid and lightweight, such as polycarbonate resin. Particularly preferred materials are those which provide heat-resistance, cold resistance and UV protection. In a particularly preferred embodiment, the container is comprised of a polycarbonate resin, which has a UV stabilizer incorporated into it, such as Resin Makrolon 3103®, by Dow Plastics. Other conventional materials may be used which possess suitable UV stabilizers.

As shown in Figures 1 and 2, the releasable cap 12 is of a unitary configuration having opposed ends, including a closed end, and a generally circular open end, the open end, when in use, being adapted to fit snugly over the open top of the container 10. The releasable cap 12 has a bulbous or nipple like upper portion 20, a tapering concave narrow medial portion 22 and an elongate lower portion 24, which fits snugly over the open end

of the container 10.

Preferably, the cap 12 is comprised of a pliable, rubber or rubberized plastics material, such as a polyvinyl chloride (PVC) or other suitable material.

To position the cap 12 onto the container, the lower portion 24 of the cap 12 is fitted over the open end of the container. The cap 12 is then pushed downwardly onto the container 10 until the top open end of the container reaches the lower part of the concave medial portion 22.

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As the releasable cap 12 is placed onto the top open end of the container 10, and a seal is formed between the cap and container, the air inside the cap is forced into the interior of the container thereby creating a higher pressure within the container 10 once the lower portion of the cap is placed over and top open end. This allows for a snug or tight fit between the cap and container.

To remove the cap and access the interior of the container 10, the releasable cap 12 is removed by squeezing or compressing the upper portion 20 of the cap 12.

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When the upper portion 20 and or the medial portion 22 of the cap 12 are compressed, this allows for a combination of two factors which allow for the easy removal of the cap 12. First, the compression of the upper portion 20 provides temporary deformation of the cap 12 at all three portions of the cap thereby creating a slight gap or space between the container and lower portion 24 of the cap. Secondly, the deformation of the upper portion 20 forces the air within the cap 12 to be forced into the interior of the container 10. This provides a higher pressure within the container which provides additional air pressure against the cap thereby facilitating the removal of the cap 12.

Alternatively, the cap 12 may be compressed at the upper portion 20 and or medial portion 22 to provide a vacuum within the cap when prior to placing the cap 12 onto the container 10. This compression would provide a slight vacuum within the container and provide for a lower air or negative air pressure within the device once placed upon the container 10 and pressure is released from the bulb portion of the cap 12. To remove the cap 12, the releasable cap 12 is compressed at the upper and or medial portions providing deformation of the three portions of the cap creating a slight gap or space between the lower portion 24 of the cap 12 and the container 10. Additionally, compression of the cap 12 forces the air into the container creating an increased air pressure within the container member 10 and providing air pressure against the cap 12 to facilitate separation of the cap 12 from the outside container walls.

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Although embodiments of the invention have been described above, it is not limited thereto and it will be apparent to those skilled in the art that numerous modifications form part of the present invention insofar as they do not depart from the spirit, nature and scope of the claimed and described invention.

CLAIMS:

1. A device for containing a drug injector comprising:
an elongate container adapted to receive a drug injector, said container having a closed lower end and an opposed open upper end, and
a generally flexible sealing means, said sealing means including a releasable cap adapted for a substantially airtight seal over said open end of said container, said cap comprising a lower wall portion for fitting over the outside of said container and an upper wall portion extending upwardly above said upper end of said container, and a closed end, whereby compressing together opposing sides of said upper wall portion causes an increase in air pressure within said container and a release of said airtight seal for removal of said cap.
2. A device according to claim 1, wherein said container is made from a rigid material.
3. A device according to claim 1 or 2, wherein said container is made from a plastics material.
4. A device according to any one of claims 1 to 3, wherein said container is made from a polycarbonate resin.
5. A device according to claim 4, wherein said polycarbonate resin includes a UV stabilizer.
6. A device according to any one of claims 1 to 5, wherein said cap portion includes a lower, medial and upper portion.
7. A device according to any one of claims 1 to 6, wherein said releasable cap is of a rubberized plastic.
8. A device according to any one of claims 1 to 7, wherein said releasable cap is made from polyvinyl chloride.

9. A device according to any one of claims 1 to 8, wherein said releasable cap is removable from a sealing position when placed upon said container through manually squeezing said cap thereby applying inward pressure on said upper and medial portions of said cap.
10. A device according to any one of claims 1 to 9, wherein said container is about 15 cm in length and has a diameter of about 2.5 cm.
11. A device according to claim 1, wherein said container comprises a tube.
12. The device according to claim 1, in combination with an autodrug injector.
13. The device according to claim 1 or claim 12, in combination with written instructions for removing said cap, by compressing opposed sides of the upper portion of said cap, followed by removal of said cap from said container.
14. A device according to claim 1, wherein said cap includes a narrowed waist region between said upper and lower portions.

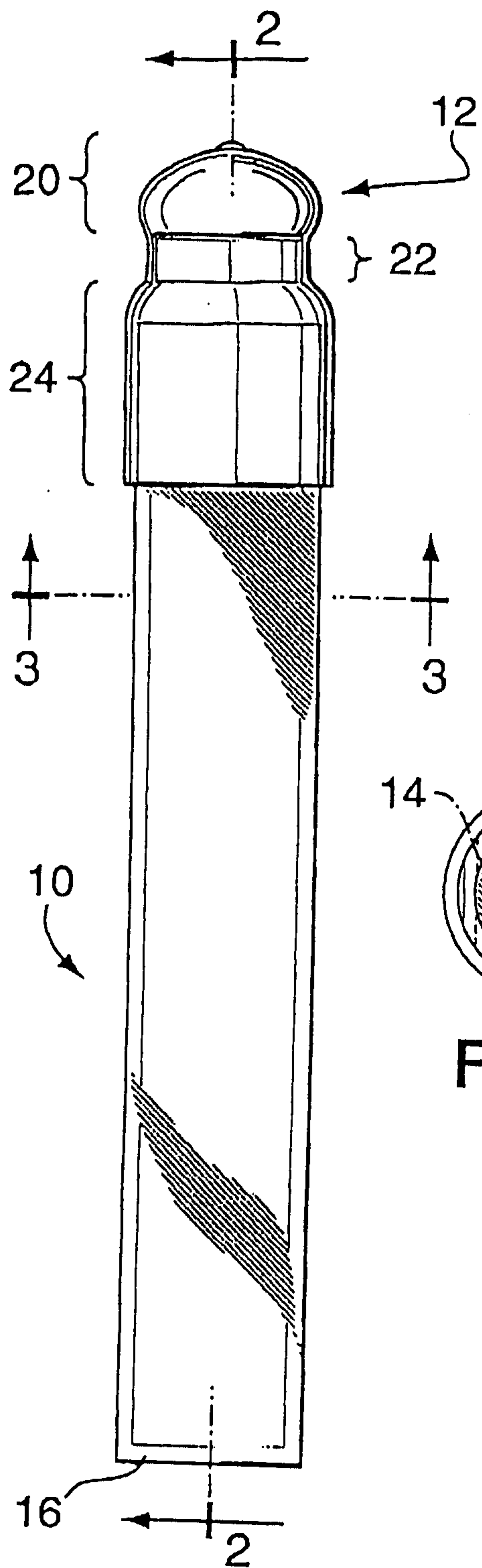


FIG. 1

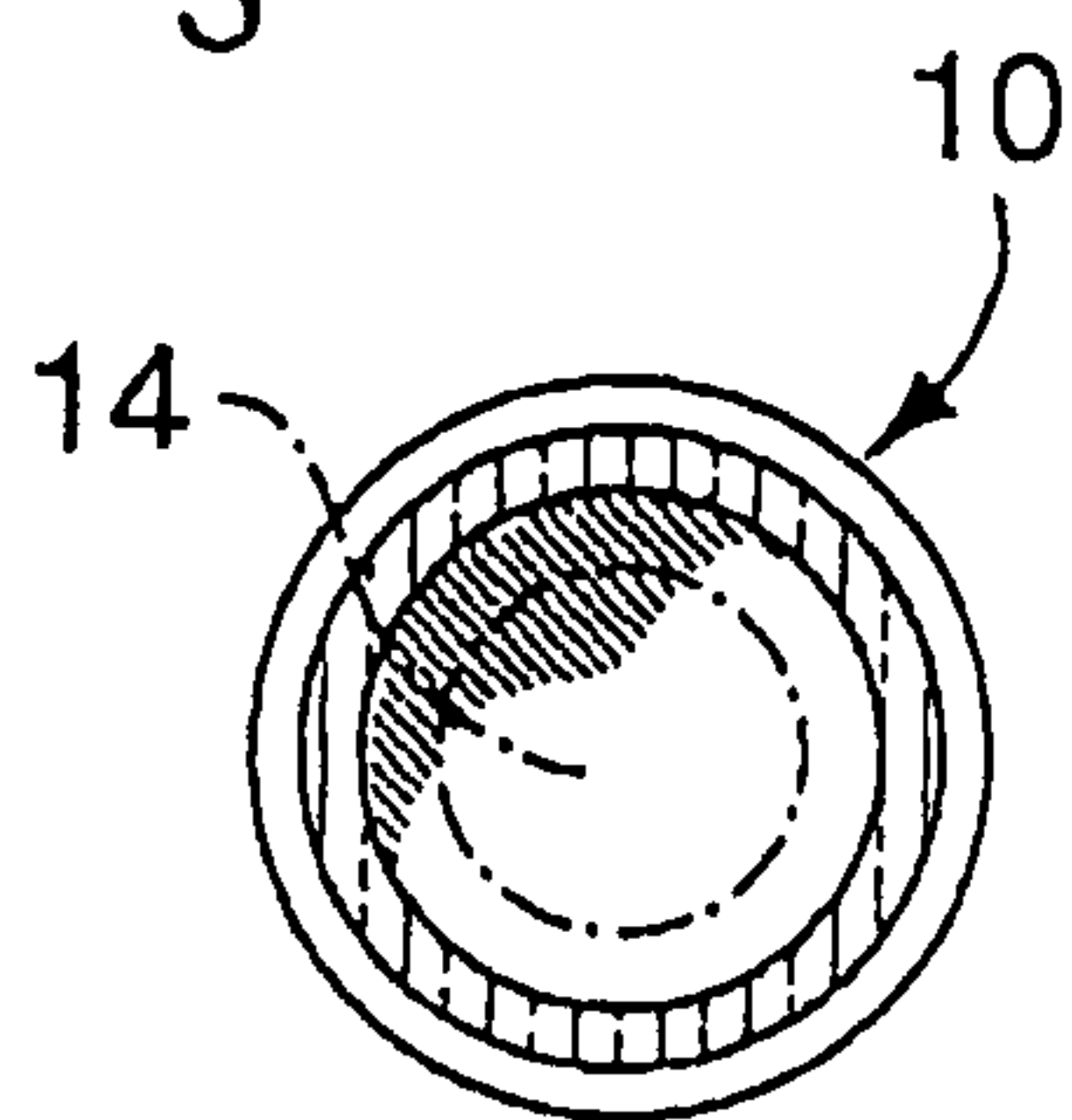


FIG. 3

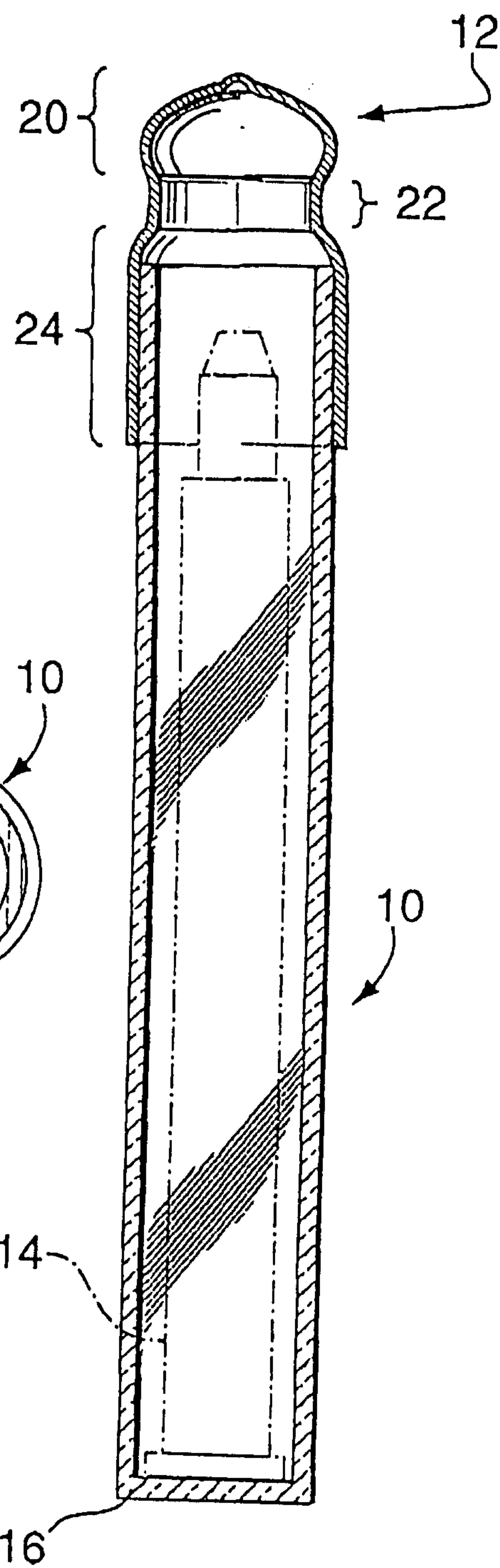


FIG. 2

