

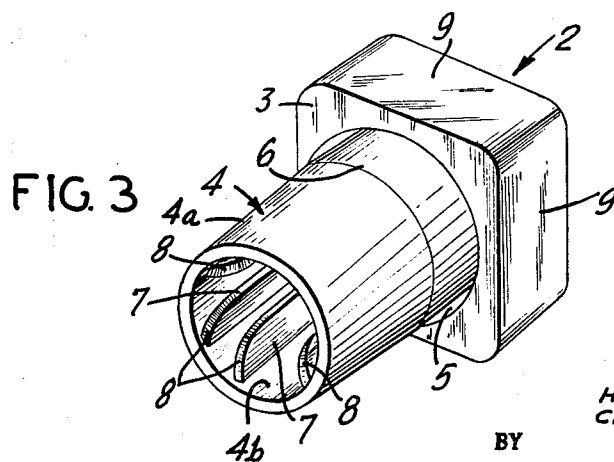
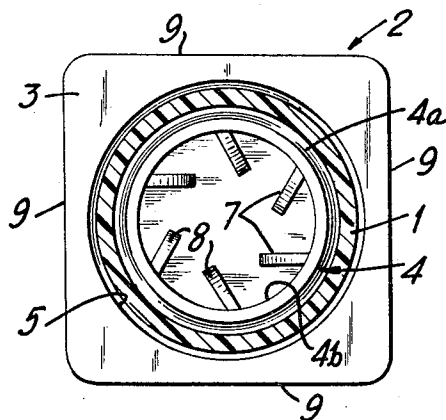
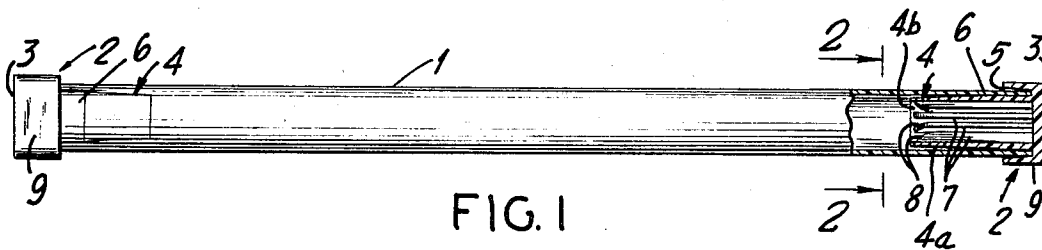
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PACKAGING CONTAINER

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## PACKAGING CONTAINER

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4 Claims. (Cl. 206—16.5)

This invention relates to a unit for the packaging and transportation of thin, fragile objects and has particular utility for packaging and transportation of thermometers.

The packaging and handling of thermometers has been a particularly difficult problem due to the extreme fragility and the susceptibility to shock of such articles. In addition, any packaging used to provide a shipping container should be reuseable to store the thermometer between uses.

This invention provides a packaging unit that will both safely transport and store thermometers and other thin, fragile objects. Broadly, the article of this invention comprises a tube of sufficient length and cross-sectional area to allow insertion of the object within the tube, end closures or caps for insertion into the respective openings of the tube, at least one of said caps having a hollow section that projects into the tube, the inside wall of said hollow section having flexible ribs integrally molded to said inside wall. The flexible ribs act as a receptacle for the respective ends of the fragile object and provide a cushioning effect against shock.

In the preferred form, the flexible ribs extend lengthwise along the inside wall of the hollow section for a limited distance and said ribs are oriented such that they are angled away from the radial direction. Moreover the ends of the ribs are tapered toward the inside wall at the open end of the cap to assist the insertion of the thermometer into the unit. Again in the preferred form, when assembled, each end of the fragile object is supported by a cap with adequate clearance from the sides of the tube. The ribs are sufficiently flexible to act as shock absorbers and allow for some mishandling of the tube. Further, at least one cap is provided with a polygonal outside configuration to facilitate storage of the fragile object and prevent rolling of the unit.

A form of the packaging unit of this invention and its use in conjunction with containing a thermometer is described in greater detail below and in the drawing in which:

FIG. 1 is a plan view of a tube containing a form of the end caps of this invention;

FIG. 2 is a section taken along line 2—2 of FIG. 1; and

FIG. 3 is an isometric view of the cap.

Referring to FIG. 1, a tube 1 of sufficiently large diameter to receive a thermometer is capped at both ends by identical caps 2. As shown in FIGS. 2 and 3, the cap is composed of an outside body section 3 and a cylinder 4 designed to fit inside the tube 1. Although a cylindrical section 4 is shown herein the member inserted into the tube must be of the same cross-section as the tube, for instance, a square section may be used with a square tube. A recess 5 is provided around the outside of the end of cylinder 4 in body 3. The recess is of sufficient size to receive the end of the tube 1 and thereby facilitate sealing. The external surface 4a of cylinder 4 contains a thickened area 6 which, when inserted into tube 1, provides a tight frictional fit with the tube when the tube is inserted into recess 5.

The internal surface 4b of cylinder 4 is provided with a series of thin, flexible ribs which run along the length of the cylinder. The ribs are oriented at an angle from the radial direction so that when a thermometer is inserted they will bend on the axis of their junction with the internal surface 4b and provide shock resistance. The end 8

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of the ribs nearest the opening of the cylinder 4 is tapered toward the internal surface 4b to facilitate entrance of the thermometer and to allow for variations in thickness of the object inserted.

Although longitudinal ribs 7 are shown herein it is within the scope of this invention to provide a flexible, spiral, supporting rib or a series of flexible circular ribs dispersed in the axis of the tube or at varying angles therewith. Compressible ribs may also be utilized.

Referring to FIG. 3, the circumference of the body 3 of the cap 2 is provided with multiple sides 9. The provision of polygonal sides facilitates storage of the tube and prevents rolling of the tube and consequent breakage of its contents.

A further feature is a packaging unit wherein one of the caps is permanently affixed to the tube, i.e., permanently affixed in the sense that its manual removal would be difficult. This may be accomplished by disposing a cap as described above with substantially all of the body 3, exterior of the tube, removed, and where the other cap is as described above. In such a construction there is the tendency to insert the bulb end of the thermometer into the permanently closed end of the unit. This fact coupled with the fact that the bulb end is of less cross-sectional area, than the other end, facilitates the removal of the thermometer from the tube for reason that for the same cap the gripping action on similar material is less the smaller the cross-sectional area of the inserted section. Moreover, construction in this manner allows the thermometer to be removed with the working end free.

We claim:

1. An article for the packaging of an elongate fragile object comprising a tube having a cross-sectional area larger than the object to be contained therein, similar end caps sealing the ends of the tube, said end caps having a hollow plug portion which fits inside of said tube, and flexible integral ribs projecting inwardly from the inner wall of said hollow plug portion, said ribs providing shock isolating supports engaging the end portions of the object.

2. The article as claimed in claim 1 wherein the flexible ribs are disposed longitudinally parallel to the common axis of the end caps and tube and are angled away from the radial.

3. A package for a thermometer comprising a tube of cross-sectional area greater than that of a thermometer to be contained therein and of a length approximating that of the thermometer, and similar end caps sealing the ends of the tube by means of an annular tube receiving groove and a tapered plug portion, said tapered plug portion being hollow and having flexible integral ribs projecting inwardly from its inner wall, said flexible ribs being adapted to engage and shock mount the end portions of a thermometer.

4. The package as claimed in claim 3 wherein the flexible ribs are disposed longitudinally parallel to the common axis of the end caps and tube and are angled away from the radial.

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