

**ADULT FRIENDLY CHILD-RESISTANT
ATTACHMENT FOR CONTAINERS USED TO
STORE POTENTIALLY DANGEROUS
MATERIALS**

TECHNICAL FIELD

The present invention has relation to a package for storing and dispensing materials which can be harmful, particularly if improperly ingested.

In a particularly preferred embodiment, the present invention has relation to an attachment for a container used for storing and dispensing medicament tablets and the like.

The present invention has further relation to such an attachment for a container which is resistant to opening by the majority of children coming in contact with it, yet which can be opened without undue difficulty by adults whose manual dexterity may, at least to a degree, be impaired.

The present invention has further relation to such an attachment for a container which can be inexpensively manufactured to facilitate disposal thereof once the contents have been completely dispensed from the package.

The present invention has still further relation to methods for manufacturing such an attachment and the resulting package.

BACKGROUND ART

Child resistant packaging is understood to be a great concept for preventing inadvertent access by children to potentially dangerous materials such as medications. However, inclusion of the child resistant feature adds cost and, all too often, difficulty and frustration for the adult user when attempting to open the package.

Because of deteriorating health, elderly persons tend to rely on medication more than the average person. The elderly may also tend to have impaired manual strength and dexterity. Due to the difficulty in opening child resistant medicine packages which are currently in widespread use, many elderly persons request a non-child resistant package substitute. Alternatively, when medications are purchased in child resistant packages by older adults, the child resistant package is oftentimes not reclosed in order to defeat the child resistant feature. As a result, a large percentage of child poisonings occur in the homes of such elderly adults, e.g., grandparents.

The aforementioned problems are generally recognized in the packaging industry, particularly the pharmaceutical industry. Attempts to deal with these problems are also disclosed in the patent literature. For example, U.S. Pat. No. 3,993,208 issued to Ostrowsky on Nov. 23, 1976 discloses a safety closure means wherein the shoulder on a container is formed with a pair of diametrically positioned locking lugs. The mating closure is formed of thermoplastic material and has a top end wall and a depending annular inner wall in addition to a depending outer annular skirt spaced from the inner wall. The inner wall includes threaded means for engaging the neck of the container to secure the cap to the container in a closed position. The outer skirt of the cap has a pair of diametrically positioned radially extending locking lugs adjacent the lower end of the skirt. The cap locking lugs are adapted to pass inwardly of the container locking lugs and to be compressed radially inwardly when the cap is rotated to a cap closing position.

As the cap lugs move past the container locking lugs, the cap lugs are released from their compressed condition so that they extend outwardly beyond the engaging edges of the container locking lugs. This prevents the closure from being unscrewed until the outer skirt of the closure is manually squeezed radially inwardly adjacent the cap locking lugs to permit them to clear engagement with the edges of the container lugs as the cap is unscrewed from the container.

Under normal in use conditions, removal of the closure of Ostrowsky requires squeezing the outer skirt of the closure sufficiently to disengage the lugs on the container and simultaneously unscrewing the closure with the same hand used to apply the squeezing force. This may be difficult, particularly for elderly persons who may have impaired manual dexterity and strength.

In addition, the closure of Ostrowsky visually reveals how the interlocks must be overcome in order to remove the closure. A child having sufficient strength to depress the closure skirt may have sufficient intellect to defeat the interlock and remove the closure.

Another attempt to overcome the aforementioned problems is disclosed in U.S. Pat. No. 4,520,921 issued to Vissing on Jun. 4, 1985. The Vissing patent discloses a semirigid type container having a cap portion with a special mating relationship. In the illustrated embodiment, the cap comprises a cylindrical portion with an enlarged upper edge to facilitate gripping. A hole, or a pair of holes, may be provided in the skirt of the cap. The mating container to which the cap is applied has a reduced thickness area with a protruding boss or a pair of bosses. The reduced thickness portion of the container deforms when pressure is applied to the pressure point so that the cap can slip over the container. When pressure is released from the pressure point the boss or bosses on the container are allowed to enter the mating hole or holes in the cap. If desired a tapered lead-in ramp can be used to seat the boss on the container in a mating hole in the cap. The cap is removed by squeezing the pressure point or points to disengage the boss or bosses on the container from the hole or holes in the cap.

A potential difficulty, from the standpoint of child resistance, is that a simple squeezing force applied about the periphery of the container could inadvertently lead to deformation of the pressure point or pressure points of the container of Vissing, thereby permitting complete removal of the cap without the need for deliberate action on the part of the person squeezing the container.

Still another prior art attempt to overcome the aforementioned problems is disclosed in commonly assigned U.S. Pat. No. 4,948,002 issued to Thornock et al. on Aug. 14, 1990. The Thornock et al. patent discloses a package comprising a bottle, a collar which is secured in place over the uppermost portion of the bottle and a closure which is secured to the finish portion of the bottle by means of complementary screw threads. The collar preferably includes a pair of spring-like pushtabs containing vertical extensions which engage interlocking teeth on the innermost surface of the closure skirt when the closure is fully assembled onto the bottle. To remove the closure, the opposed pushtabs must be manually depressed prior to applying unscrewing torque to the closure to disengage the pushtab extensions from the interlocking teeth on the closure. While the Thornock et al. patent discloses a package exhibiting highly improved child resistance without significantly impeding