

[54] **CHILDPROOF COVER**  
 [75] Inventor: **Robert A. McKirnan**, Winnetka, Ill.  
 [73] Assignee: **Knight Engineering & Molding Co.**,  
 Arlington Heights, Ill.  
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*Primary Examiner*—George E. Lowrance  
*Attorney, Agent, or Firm*—Kinzer, Plyer, Dorn &  
 McEachran

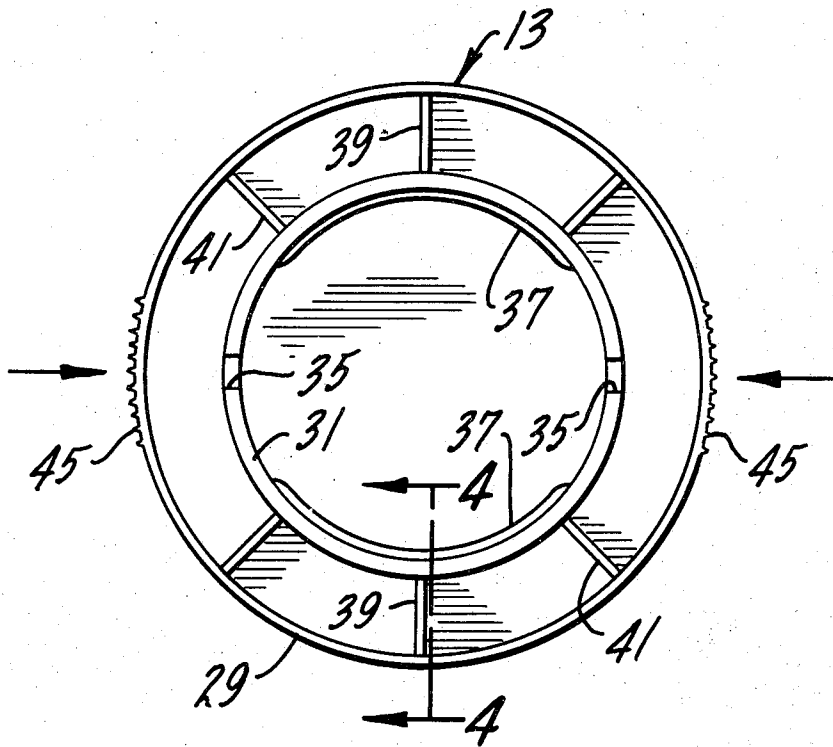
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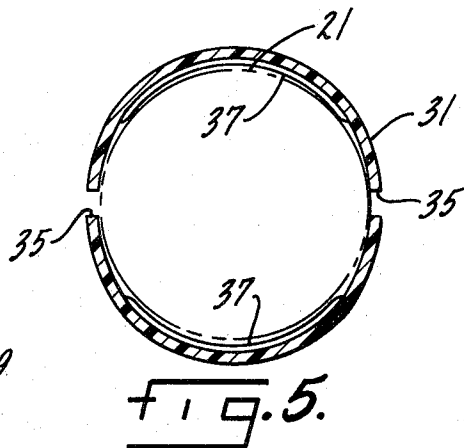
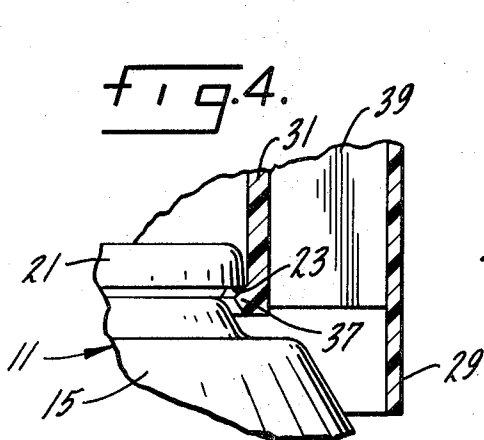
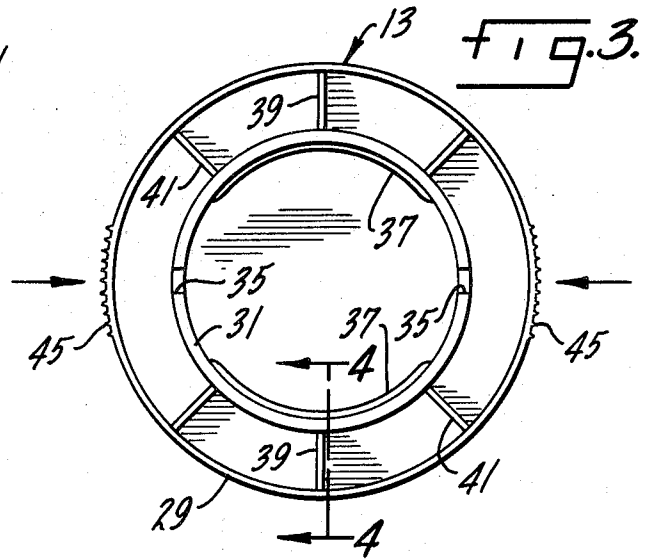
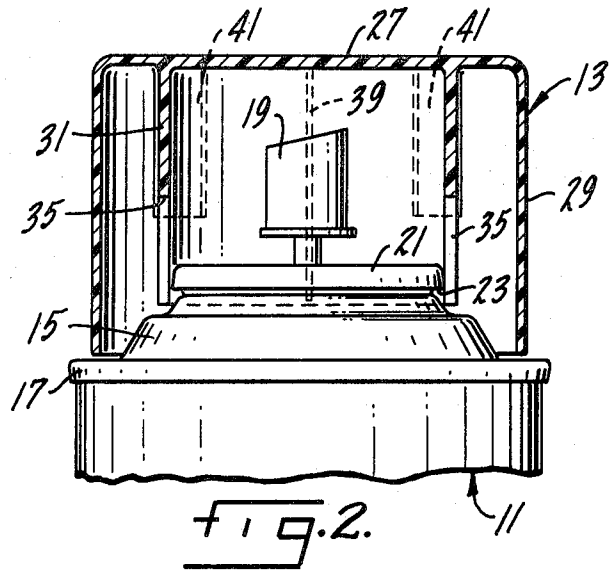
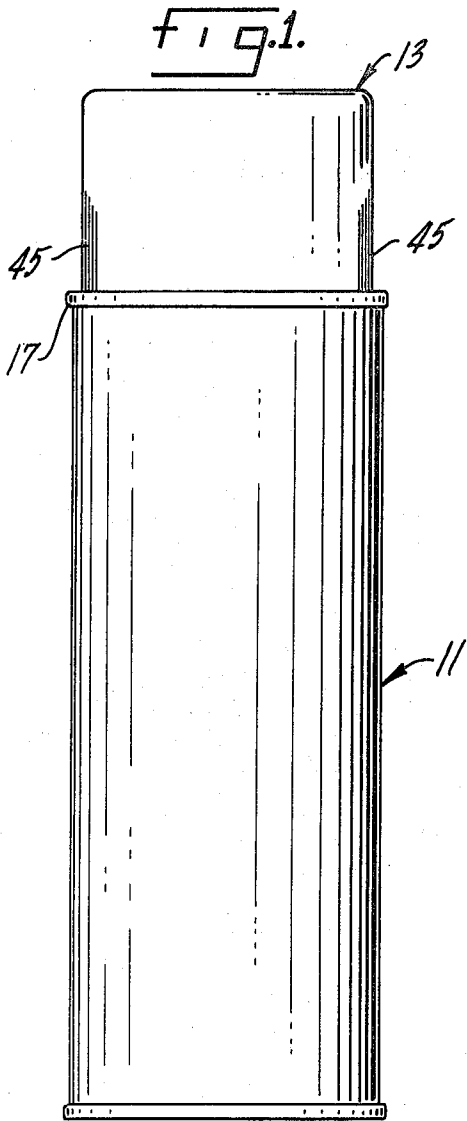
[57] **ABSTRACT**

A cover for an aerosol and similar containers that is difficult, if not impossible, for a child to remove but which may be readily removed by an understanding adult who sequentially squeezes, pulls and twists the cover after grasping it in designated locations.

[56] **References Cited**  
**UNITED STATES PATENTS**  
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**6 Claims, 5 Drawing Figures**





## CHILDPROOF COVER

## SUMMARY OF THE INVENTION

This invention is directed to a plastic cover for an aerosol and similar containers that cannot be readily opened by a child, especially a young child.

An object of this invention is a cover for an aerosol and similar containers that is difficult, if not impossible, for a child to remove but can be readily be removed by an understanding adult.

Another object is a cover for an aerosol and similar containers that must be sequentially squeezed, pulled and twisted to be easily removed.

Another object is a cover for an aerosol and similar containers that must be squeezed in designated locations to effect easy removal.

Another object is a cover for an aerosol and similar containers that can be removed and replaced many times without destroying the childproof features of the cover.

Another object is such a cover having designated squeezing locations formed integrally therewith.

Other objects may be found in the following specification, claims and drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

The invention is illustrated more or less diagrammatically in the following drawings wherein:

FIG. 1 is a side elevational view of an aerosol container equipped with a cover embodying the novel features of this invention;

FIG. 2 is an enlarged partial cross-sectional view of the aerosol container and cover of FIG. 1;

FIG. 3 is a bottom view of the cover of FIG. 2;

FIG. 4 is an enlarged partial view taken along line 4-4 of FIG. 3; and

FIG. 5 is a somewhat schematic view of the inner skirt of the cover in its squeezed position prior to removal.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows a dispensing container 11 which may be of the aerosol type equipped with a cap 13 of the childproof type. The dispensing container is cylindrical in shape and is enclosed at its upper end by a domed top 15 secured thereto by an upstanding annular rim 17. A valve actuator 19 is mounted on the domed top and is surrounded by an annular collar 21. The annular collar has an underside 23 which is spaced from the domed top.

The cap 13, which may be formed of a suitable flexible plastic, includes a circular top 27 formed integrally with an outer depending skirt 29 and an integral coaxial inner skirt 31 also depending from the circular top. As can be seen in FIG. 2, the inner skirt is shorter than the outer skirt.

Diametrically spaced slits 35 are cut through the inner skirt 31 and extend from the lower edge thereof towards the circular top 27 of the cap, stopping short thereof. Arcuate lips 37 are formed integrally with the inner skirt 31 at the lower edge thereof and extend inwardly of the skirt. As is shown in FIG. 3, the lips are located diametrically of one another and at right angles to the slits 35. Webs 39 connect the outer skirt 29 with the lip portions of the inner skirt 31. The webs 39 are diametrically positioned relative to each other and con-

nect with the inner skirt at approximately the midpoint of the arcuate lips 37. The webs also are located at right angles to the slits 35 in the inner skirt. The webs extend the full length of the inner skirt. Additional webs 41, which are shorter than the webs 39, also connect the outer and inner skirts to strengthen the cap. These webs are spaced generally symmetrical relative to the webs 39 and should be positioned nearer to the webs 39 than to the slits 35 so as not to interfere with the elliptical deformation of the inner skirt 31.

Indicia 45 are formed on the exterior of the outer skirt 29 at locations radially outwardly of and aligned with the slits 35. In this embodiment, the indicia consists of a series of slightly raised longitudinally extending parallel ribs which are formed integrally with the outer skirt.

The use, operation and function of this invention are as follows:

The cap 13 of this invention is intended for use on aerosol and other dispensing containers for products which may be hazardous to children. It is particularly concerned with such a cap which is inexpensive to manufacture and which may be installed and removed numerous times without losing its "childproof" locking features.

When a cap 13 is installed on a container 11 of the type shown in the drawings having annular collar 21 located above a domed roof 15 with the collar having an underside 23, the diametrically located, arcuate inwardly extending lips 37 on the inner skirt 31 of the cap will engage the underside 23 of the collar, holding the cap securely in place. It will be difficult, if not impossible, for a child to easily remove the cap.

To remove the cap from the container, it is necessary to apply pressure to the portions of the cap marked with the indicia 45 with the pressure being applied in the direction of the arrows as shown in FIG. 3. The squeezing of the outer skirt 29 of the cap due to the application of pressure to the indicia areas 45 will cause the outer skirt to become elliptical with the long axis of the ellipse aligned with and extending through the webs 39. The webs 39 will move radially outwardly along with the outer skirt 29, pulling the inner skirt 31 into an elliptical shape as shown in FIG. 5. The slits 35 assist the inner skirt to distort to an elliptical shape due to the pulling force of the webs 39. Since the webs 39 are connected to the portions of the inner skirt 41 adjacent the centers of the lips, the lips 37 will also be moved radially in the manner shown in FIG. 5, moving the lips out of engagement with the underside 23 of the collar 21. This will permit the user to pull and twist the cap and thereby remove it from the container.

If pressure is applied to portions of the outer skirt, other than the portions marked by the indicia, the lips 37 of the inner skirt will not be moved out of engagement with the underside 23 of collar 21 but rather will be forced more firmly into locking engagement with this collar. Thus, removal of the cap requires a sequence of manipulations of which a young child would not normally be capable of performing.

I claim:

1. A childproof cover for a container such as an aerosol container having a roof, a circular collar located on said roof with said collar having an undersurface positioned above said roof, said cover being formed of a flexible plastic and including:

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a circular top, and outer skirt depending from said circular top, an inner skirt coaxial with said outer skirt and also depending from said top, a pair of lips projecting inwardly from the lower end of said inner skirt and positioned to engage the undersurface of said circular collar when said cover is positioned on said container, said lips being spaced from and located opposite to each other, a pair of slits formed in said inner skirt and extending from the lower edge thereof towards the circular top with said slits being located generally diametrically of each other and between said lips, and a pair of webs connecting said outer and inner skirts with said webs positioned relative to said slits so that forces inwardly applied to opposite sides of said outer skirt at the lower edge thereof adjacent said slits will cause distortion of said outer skirt and radially outward movement of said webs which in turn will cause distortion of said inner skirt and release of said lips from engagement with the under-

surface of said circular collar.  
 2. The childproof cover of claim 1 in which said webs are located at right angles to said slits.  
 3. The childproof cover of claim 1 in which indicia indicating pressure applying areas are formed on the exterior of said outer skirt adjacent the lower edge thereof with said indicia positioned at right angles to said ribs.  
 4. The childproof cover of claim 1 in which said indicia are aligned with said slits.  
 5. The childproof cover of claim 1 in which additional webs shorter than said webs of said pair of webs are provided to connect the inner and outer skirts with said shorter ribs being arranged in pairs located on opposite sides of each of said webs and spaced closer to said webs than to said slits.  
 6. The childproof cover of claim 1 in which said lips are arcuate shaped and each extends through an arc less than that of its portion of said inner skirt.

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