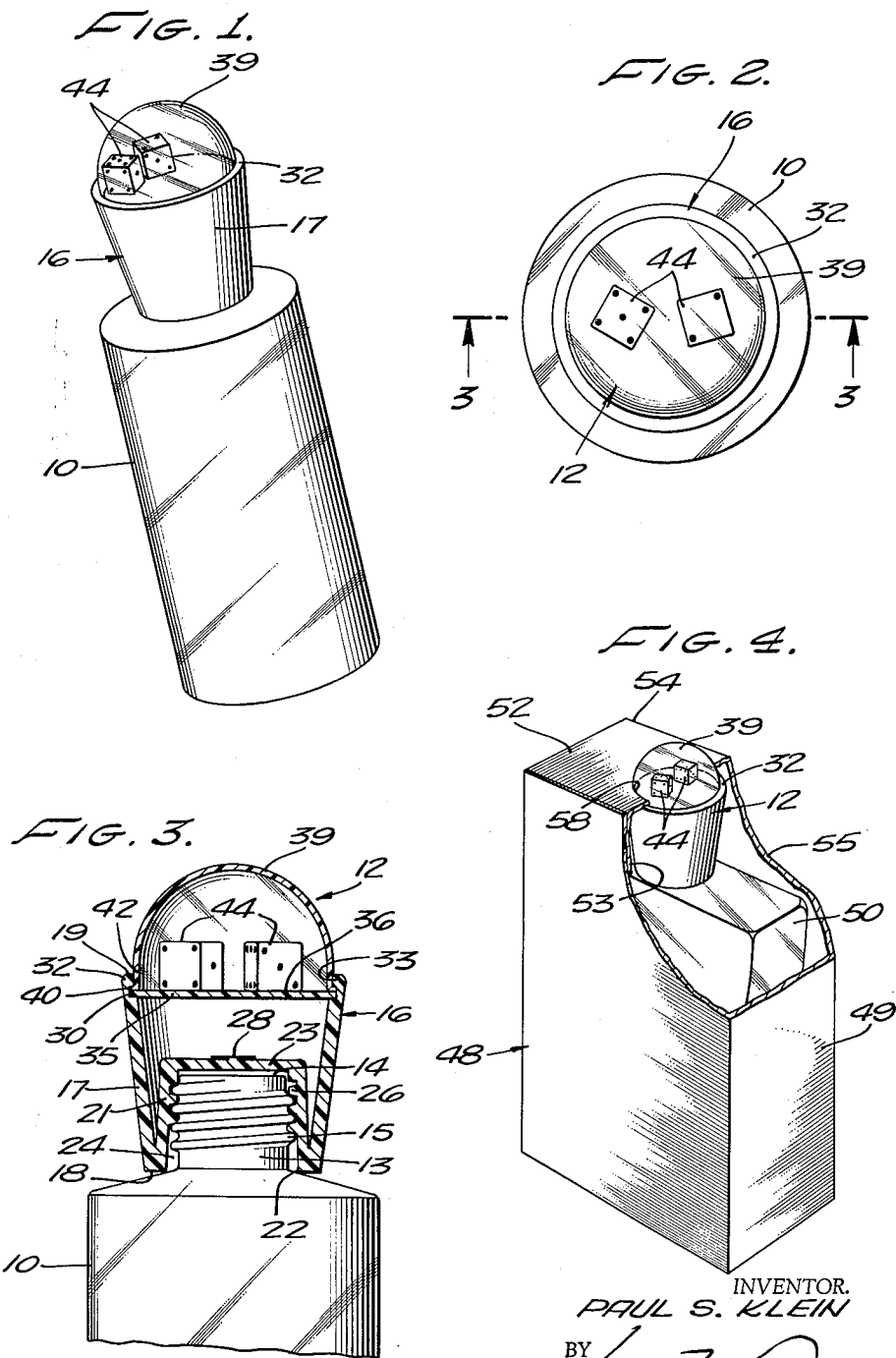


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P. S. KLEIN
BOTTLE CAP

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3,085,709
BOTTLE CAP

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This invention relates generally to bottle caps and more particularly to a novel cap having a transparent hollow dome containing an article on display.

It is an object of this invention to provide a bottle cap containing an article to be exhibited and of such construction that its component parts may be molded of plastics and be easily assembled with tight interfit into a sturdy unit.

Another object is to provide a novel package of a box containing a bottle with a cap of the above mentioned character projecting through the top of the box and presenting the exhibited article on view.

A general object is to provide a bottle cap of the above-mentioned character which is simple and strong in construction so as to withstand the degree of rough handling to which it is subjected in use and be capable of economical manufacture.

Further objects of the invention will appear during the course of the following part of this specification wherein the details of construction and manner of assembling component parts of an embodiment of the invention are described with reference to the accompanying drawing, in which:

FIGURE 1 is a perspective view of a bottle having a cap embodying this invention;

FIGURE 2 is an enlarged top view of the capped bottle;

FIGURE 3 is a vertical section through the cap taken along line 3-3 of FIGURE 2; and

FIGURE 4 is a perspective view of a box containing a bottle with a cap of this invention, the box being cut away to show the bottle and cap.

Referring to the drawing in greater detail, the bottle shown in FIGURES 1-3 is designated by reference numeral 10, and its cap, embodying this invention, is designated generally by numeral 12. The bottle 10 of FIGURES 1-3 is a round cylindrical bottle having a neck 13 defining the bottle opening 14, the neck having an external screw thread 15 for screw connection with the cap.

The cap 12 comprises a body formed of a relatively firm elastomer, e.g., polyethylene, having a frusto-conical side wall 17, the smaller end of which is designated by numeral 18 and the larger end by numeral 19. Disposed axially within the side wall 17 is a substantially cylindrical wall 21, defining an end opening 22 for the cap, the cylindrical wall being integral throughout its circumferential extent with the frusto-conical wall 17 at the smaller end 18 of the wall 17. Cap body 16 includes a closure wall 23 for covering the bottle opening 14, the closure wall being integral around its circumference with the inner end of the cylindrical wall 21. The several walls 17, 21 and 23 of the body are molded as a unit. The outside surface of the cylindrical wall 21 may be slightly tapered toward its inner end to permit easy removal of the body from the mold in which it is formed.

Walls 21 and 23 define a socket 24 of the cap open at 22 for receiving the neck 13 of the bottle. The inside of the cylindrical wall 21 is provided with screw threads 26 for engagement with the screw threads 15 on the neck of the bottle. On that side of the closure wall 23 which faces toward the larger end 19 of the frusto-conical side wall 17, there are crossed ridges 28 which provide a con-

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venient means for imparting rotation to the cap body to unscrew the same from its mold.

On the inside of the frusto-conical wall 17 is an annular groove 30 proximate the larger end 19 of wall 17, the groove 30 being in a plane perpendicular to the axis of the cap body. Groove 30 is spaced slightly inward from the larger end 19 of the side wall 17 thereby defining a rim portion 32 of the wall 17. The inside surface 33 of the rim is preferably cylindrical. A circular flat sheet 35 of cardboard or plastics, for example, extends across the space bounded by the wall 17 at groove 30, with the margin of sheet 35 extending into the groove thereby to position the sheet 35 within the side wall 17 on a horizontal plane. The upper surface 36 of the sheet may be suitably colored, and, if desired, may have a thin covering of felt (not shown).

Cap 12 includes a hollow hemispherical dome 39 of transparent material, e.g., rigid plastics, projecting outwardly from the larger end 19 of the cap body 16. The dome has an annular flange 40 extending radially outward at the base of the dome, the flange being received in the annular groove 30 above and seated upon the margin of the flat sheet 35. The cap body 16 being formed of an elastomer, may be expanded for insertion of the sheet 35 and the flanged base of the dome 39 within the groove 30. To provide for close interfit of the cap parts, the wall of the dome 39 is preferably cylindrical in that portion 42 thereof which is contiguous its flange 40 and is received within the cylindrical surface 33 of rim 32 of the cap body, the outside of the cylindrical portion 42 being flush throughout its circumferential extent with the cylindrical surface 33. Also, the groove 30 is of such width, axially of the cap, that the sheet 35 and the flange 40 of the dome are under compression within the groove.

The dome houses an article to be exhibited as a pair of dice 44, in the case of the illustrated embodiment. The dice are tossable around within the dome by shaking the bottle, then resting, of course, upon the flat sheet 35 when the bottle is erect.

Referring to FIGURE 4, there is shown a package, designated generally by reference numeral 48, comprising a box 49 of cardboard containing a bottle 50 with a bottle cap 12, the bottle 50 being of rectangular cross section. Box 49 includes a top closure panel 52 with a tuck-in flap 53 at one side and a scored edge 54 along its other side at which the top panel is foldably hinged to a side panel 55 of the box.

The top panel 52 has a centrally disposed opening 58 through which the dome 39 of cap 12 projects, the dimensions of the box, bottle and cap being such that the top panel 52 seats upon the cap rim 33 around the opening 58. Thus, the package 48 has the cap dome 39 exposed to view at the top of the package in a central position for exhibition of the dice 44.

While the particular bottle cap herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiment of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

I claim:

1. A cap for a bottle having a neck with external screw threads, the cap comprising a hollow body of relatively stiff elastomer having an outwardly and upwardly flaring side wall merging at its lower end with a substantially cylindrical wall positioned concentrically within said side wall, a closure wall integral with and spanning the inner end of said cylindrical wall, the inside of said cylindrical wall having screw threads for releasable engagement with

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the screw threads of a bottle neck, said cylindrical wall and said closure wall defining a socket for reception of the neck of said bottle, the upper inner rim edge of said side wall having an inwardly opening annular groove, a circular flat sheet of stiff material having its circumferentially continuous margin supported in said groove, a hollow hemispherical dome of transparent resilient material having an annular flange projecting outwardly therefrom and seated firmly in said groove, and a pair of dice held captive within the dome, the dice being tossable around within the dome and resting on said flat surface when the cap is secured in place on an upright bottle neck.

2. A bottle cap as defined in claim 1 characterized in that the side wall of said cap is frusto-conical with said transparent dome being mounted across the larger end

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thereof, and being further characterized in that said side wall is opaque and effective as a finger grip when removing and replacing said cap with respect to a bottle neck.

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