

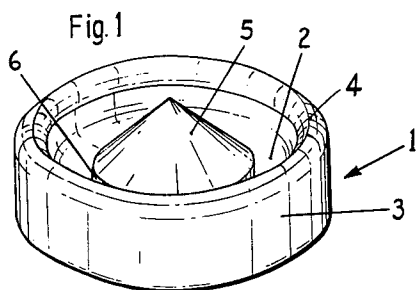
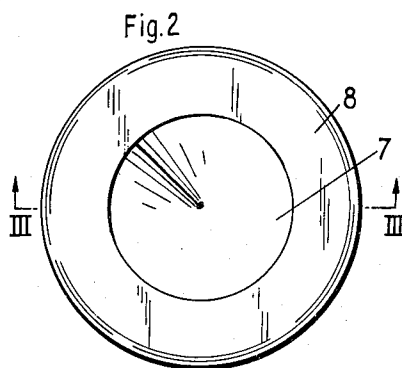
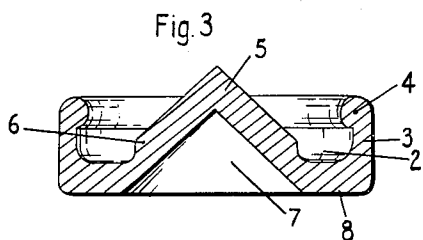
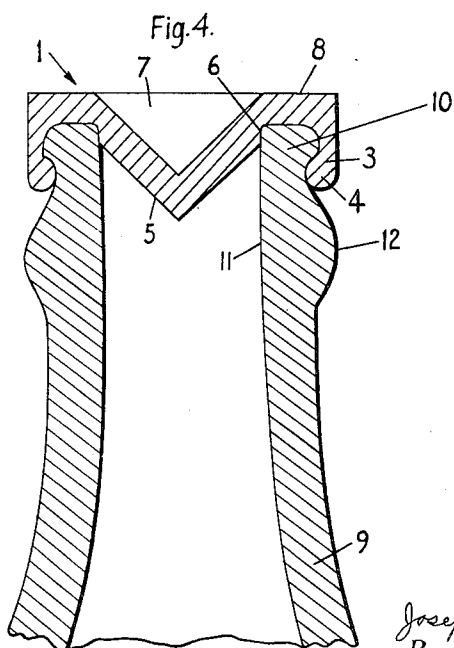
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3,233,771

CROWN CAPS

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3,233,771

CROWN CAPS

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1 Claim. (Cl. 215—41)

This invention relates to crown caps for use in capping bottles of aerated beverages, e.g. beer or mineral waters.

It is an object of the present invention to provide an integral crown cap, for example for use in capping bottles of aerated beverages, which cap will withstand the pressures customarily present within the bottles and prevent leakage of gas from the bottle to the ambient atmosphere, whilst being capable of being removed from the bottle and subsequently replaced and again withstanding the pressures of gas present within the bottle.

According to the invention there is provided a crown cap made of a mouldable flexible synthetic plastics material, comprising inner and outer circular walls of different heights defining an annular groove of a size to embrace the lip of a bottle, the said outer wall having a continuous inturned projection for resiliently engaging the outer lip of the bottle, whereby the crown cap may be removed from the bottle and replaced as desired.

As stated above, a crown cap for use in capping bottles of aerated beverages must be capable of withstanding pressure differences of one atmosphere or more between the interior and exterior of the bottle without leakage of gas, and the crown cap of the present invention has been particularly designed for use in withstanding such pressures.

According to this aspect of the present invention, there is provided a crown cap made of a moulded flexible synthetic thermoplastic material comprising a central conical portion mounted on a cylindrical base and constituting an inner wall, an outer concentric wall surrounding the said inner wall and continuously connected thereto to define a groove therewith, the outer wall having an inturned edge for releasably gripping the outer lip of the bottle, whereby the crown cap may be removed from the bottle and replaced as desired.

Advantageously the conical portion also defines a conical depression in the surface of the crown cap which is the upper surface when the cap is in position on a bottle. The conical depression in the crown cap serves to prevent the thumb of the user from slipping off the cap when the cap is being pushed onto the top of a bottle. The crown cap may be formed integrally with a handle, if desired, to assist in removing the crown cap from a bottle.

In some applications the groove in the crown cap contains a removable annulus of metal foil, e.g. tin foil, which sits in the groove and prevents any leakage of gas from the bottle capped by the crown cap due to non-uniformity in the lip of the bottle or in the groove itself.

Whilst the crown cap may be formed of any mouldable flexible synthetic plastics material, e.g. polypropylene and polytetrafluorethylene which is inert to the contents of the bottle, which it is proposed to cap, polyethylene is preferably employed.

The invention also comprehends a bottle containing a liquid, for example an aerated beverage, and having its neck sealed by a crown cap as described above which resiliently engages a lip on the neck of the bottle.

In order that the invention may be clearly understood a preferred embodiment thereof will now be described by way of example, with reference to the accompanying

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drawings in which like reference numerals indicate the same or similar parts and in which:

FIGURE 1 is a perspective view of a crown cap in accordance with the invention,

FIGURE 2 is a plan view from underneath of the crown cap of FIGURE 1,

FIGURE 3 is a section on the line III—III of FIGURE 2, and

FIGURE 4 shows a cross-section through the neck of a bottle sealed by a crown cap according to the invention.

Referring now to the drawings, there is shown generally at 1 a moulded polyethylene crown cap in accordance with the invention for use in capping bottles of aerated beverages, e.g. beer. The crown cap is of generally cylindrical shape and comprises an annular groove 2 of a size to push-fit onto and embrace the lip of a bottle (not shown) which it is desired to cap.

As will be seen more particularly in FIGURE 3 the annular groove 2 is defined by walls of different heights, an outer wall 3 having a continuous inturned projection 4, which, in the embodiment shown, is an edge or rim which resiliently engages the lip of the bottle, and force has to be applied to remove the cap therefrom. Owing to the inherent resilience in the polyethylene of which the crown cap 1 is made, the grip of the inturned edge 4 on the lip of the bottle is releasable, whereby the crown cap may be removed from the bottle and replaced as desired as will be hereinafter described.

The crown cap 1 further comprises a central conical portion 5 mounted on a cylindrical base 6 which constitutes an inner wall, which is surrounded by the outer concentric wall 3. The conical portion 5 also defines a conical depression 7 in an annular surface 8 of the crown cap, which annular surface is the upper surface when the cap is in position on a bottle. As may be readily seen in FIGURE 3 of the drawings, the conical depression 7 is open and of such a size as to receive the projecting part of the conical portion 5 of a cap identical to the cap 1.

The annular groove may contain a removal annulus (not shown) of metal foil, e.g. tin foil, in order that the crown cap may form a flush fit when in position on a bottle.

The crown cap above described may be produced by conventional moulding techniques and is particularly useful for capping bottles containing aerated beverages.

As will be understood from FIGURE 4 of the drawings, the crown cap may be snapped onto a bottle 9 owing to the flexibility of material from which it is constructed. When the crown cap is placed on a lip 10 of the bottle 9 with the conical portion 5 pointing into the bottle, and pressure is applied to the conical depression 7, the outer wall 3 splays outwardly and the cap slides into position and forms a push-fit onto the lip 10.

As shown in FIGURES 3 and 4 the central conical portion 5 projects beyond the outer concentric circular wall 3, enabling this projecting conical portion 5 to act as a guide during the process of capping the bottle.

In position the annular groove 2 overlies and embraces the lip 10 of the bottle 9, the inner wall 6 and the outer wall 3 lying against an inner wall 11 and an outer wall 12 respectively of the bottle neck.

The inturned edge 4 of the crown cap releasably grips the lip 10, and it will be appreciated that the height of the outer wall 3 will depend on the size of the lip on a particular bottle.

The crown cap 1 may be simply removed from the bottle 9, for example by a conventional bottle opener or by pushing the inturned edge 4 upwardly with the thumbs. Optionally a handle, for example, in the form of a flange, may be made integral with the cap to assist in removing the crown cap without the use of a conventional opener.

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The crown caps in accordance with the invention when affixed to bottles of "Schweppes" and "7-up" mineral waters, have been found to be capable of easily withstanding 50 to 60 lbs. per square inch air pressure due to the carbon dioxide inside the bottles at a temperature of 44° C. without any leakage of gas.

By the use of the present invention there is provided a crown-cap which is hygienic and attractive and is economical to produce. It cannot rust or rot and, unlike metal crown caps of known kind, is safe to use in that it has no exposed sharp edges. Furthermore, unlike the said metal crown caps, which are oftetn bent after removal from a bottle, and cannot be re-used, the crown cap of the present invention can be used time and time again.

I claim:

A crown cap made of polyethylene comprising an outer substantially circular wall having an inturned edge, a concentric inner wall constituting a cylindrical base of lesser height than said outer substantially circular wall and defining with said outer substantially circular wall,

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a groove for accommodating the lip of a bottle, a substantially central conical portion mounted on said inner wall, said conical portion projecting beyond the outer substantially circular wall to act as a guide during the process of capping the bottle, and said central conical portion also defining, in the upper surface of the cap, an open conical depression of such size to receive the projecting part of the conical portion of an identical cap, said outer substantially circular wall, said concentric inner wall and said central conical portion all having comparable thicknesses.

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