July 23, 1946. T. R. SMITH 2,404,410

BOTTLE CAP

Filed Oct. 3, 1942

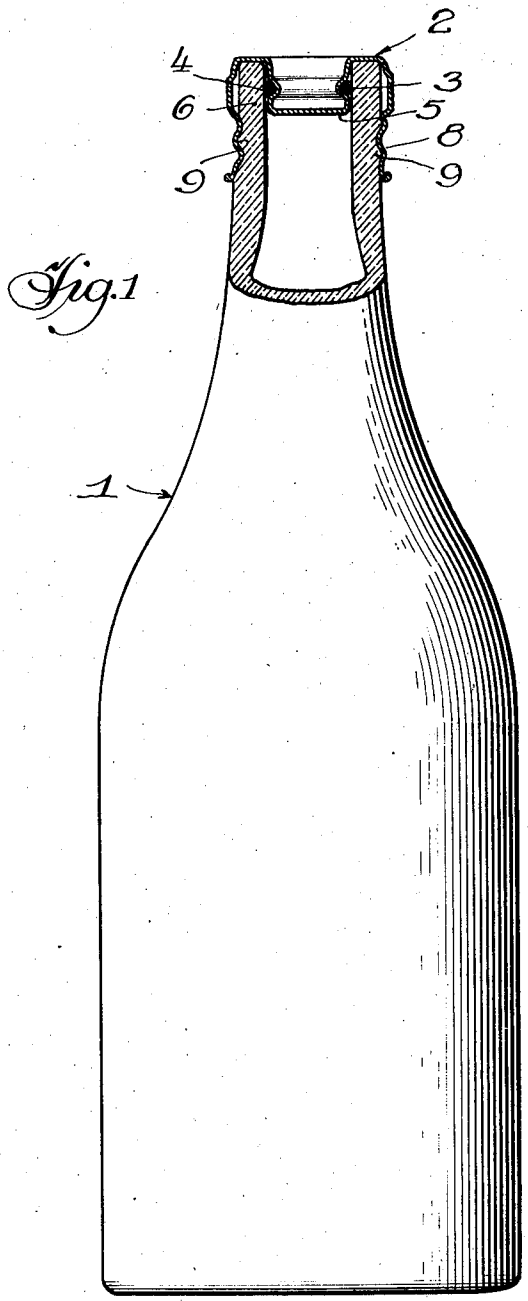

Fig. 1

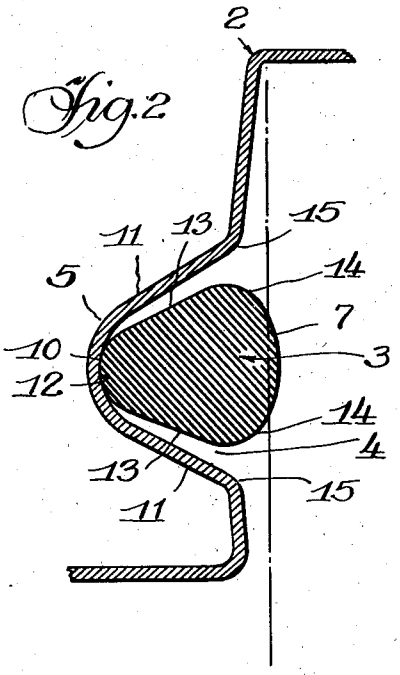

Fig. 2

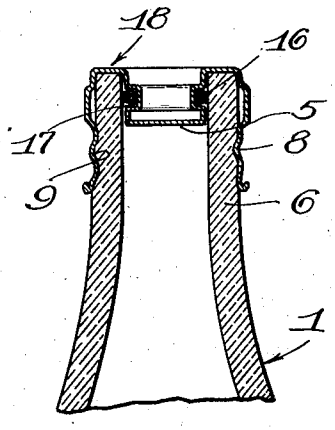

Fig. 3

Witness:
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BOTTLE CAP

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2 Claims. (Cl. 215—40)

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The present invention relates to bottle caps and more particularly to a novel form of closure which may be readily removed and replaced as often as found necessary or desirable, and when replaced effectively seals the contents of the bottle.

Among the objects of the present invention is the provision of a novel replaceable cap or closure in which the sealing effect is independent of the tightness of the cap and whereby the cap or closure need not be screwed down tightly in order to obtain a perfect seal. This provides a considerable advantage over prior types of caps now being used upon various forms of bottles, such as catsup bottles and the like, in which the screw caps must be tightly screwed down in order to effectively seal and preserve the contents of the bottle.

Further objects are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

The invention further resides in the construction, combination and arrangement of parts illustrated in the accompanying drawing, and while there is shown therein a preferred embodiment, it is to be understood that the same is susceptible of modification and change, and comprehends other details, arrangements of parts, features and constructions without departing from the spirit of the invention.

In the drawing:

Figure 1 is a view, part in side elevation and part in vertical cross section, showing the novel cap or closure applied to a bottle.

Figure 2 is an enlarged fragmentary view in vertical cross section showing the novel sealing ring and its application to the cap.

Figure 3 is a fragmentary view in vertical cross section of an alternate form of seal.

Referring more particularly to the disclosure in Figures 1 and 2 of the drawing, the embodiment therein selected to illustrate the invention comprises a bottle 1 of any suitable design or configuration, a cap or closure 2 and a sealing ring 3 mounted or received within an annular substantially V-shaped groove or recess 4 formed within a depressed, centrally disposed portion 5 of the cap. This depressed portion is adapted to depend into the neck 6 of the bottle with the base or outer surface 7 of the seal 3 in contact with the interior surface of the neck of the bottle.

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The cap 2 may be of a pressed metal, plastic or other material suitable for the purpose and is preferably formed with a threaded flange 8 adapted to threadedly engage with complementary threads 9 formed on the exterior surface of the neck of the bottle. This permits the novel cap or closure to be employed upon the ordinary or standard types of bottles now in general use for containing catsup, syrup, etc.

As more clearly shown in Figure 2, the groove or recess 4 is of substantially V-shape with the base 10 rounded and the side walls 11 diverging at an angle of approximately 60°. The seal or sealing ring 3 is of substantially wedge-shape with its vertex 12 curved upon a radius preferably slightly less than but substantially conforming to the radius of the base 10. The opposite sides 13 of the seal are disposed at an angle of approximately 45° whereby to permit the seal to pivot within the groove or recess for most effective sealing contact of the base or outer surface 7 of the seal with the interior surface of the neck of the bottle. This base is curved or rounded in a manner to maintain approximately the same amount of compression and sealing effect as the seal pivots from one side of the groove to the other. The corners 14 of the seal are also curved or rounded upon a radius which prevents the material thereat from extruding and being pinched between the corners 15 of the cap and the adjacent surfaces on the interior of the neck of the bottle.

Figure 3 discloses an alternate construction of sealing ring in which the ring 16 is of toroidal shape and mounted within a substantially channel-shaped groove or recess 17 in the cap or closure 18. This groove or recess is formed of a width greater than and of a depth somewhat less than the diameter or cross section of the sealing ring, whereby the exterior surface of the ring applies and maintains a predetermined amount of compression and sealing effect against the interior surface of the neck 6 of the bottle 1. In other respects the cap or closure is similar in construction to that shown in Figure 1.

Having thus disclosed the invention, I claim:

1. A bottle cap providing a closure for a bottle and having a threaded portion for engagement with threads on the exterior of the bottle, comprising a cap member having a centrally depressed portion adapted to extend into the neck of the bottle, an outwardly opening substantially V-shaped recess formed in the depressed portion, and a resilient sealing ring of substantially wedge-shape in cross section carried in the recess

with its outer end rounded and adapted to have a sealing contact with the interior of the neck, the sealing ring having angularly arranged opposite sides normally spaced inwardly from the sides of the recess to permit the ring to pivot about its inner end and provide an effective seal whenever the cap is mounted on the bottle.

2. In combination a bottle provided with a threaded neck, a threaded cap forming a closure for the neck and provided with a depressed central portion adapted to project into the bottle, an outwardly opening substantially V-shaped recess provided in the depressed portion and a resilient sealing ring having diverging side walls forming an acute angle, a reduced and rounded inner end pivotally seating in the base of the recess and a relatively wide and rounded outer end forming a sealing face projecting beyond the confines of the recess and into sealing contact with the interior surface of the neck of the bottle, the side walls of the ring being disposed at an angle substantially less than the angle formed by the side walls of the recess and spaced therefrom sufficient to permit the ring to pivot within and to either side of the recess.

THOMAS R. SMITH.