

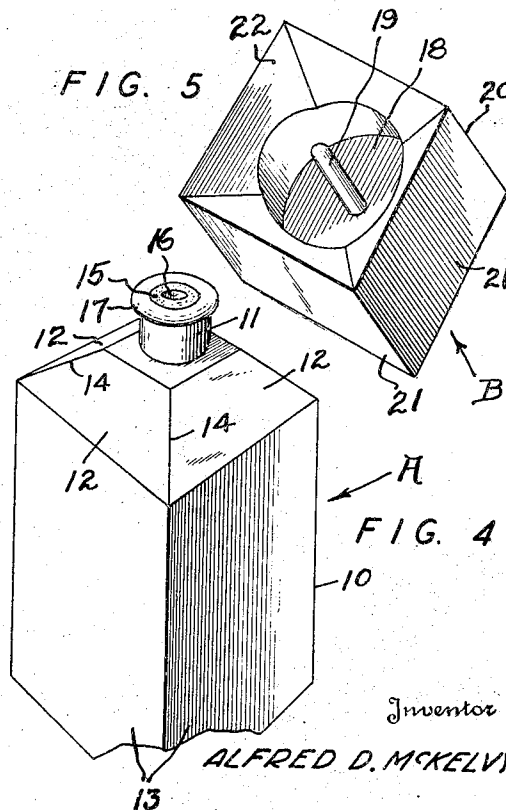
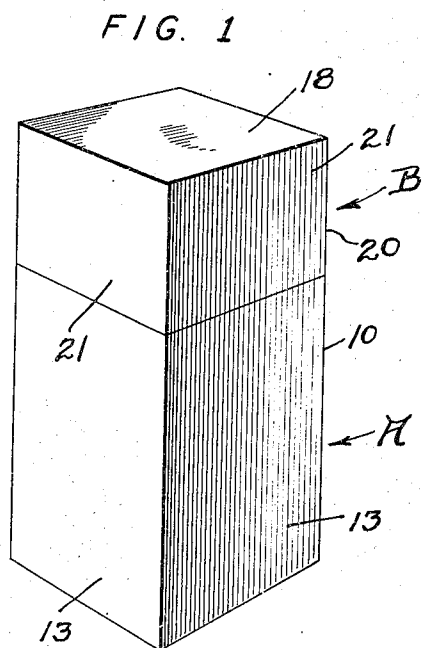
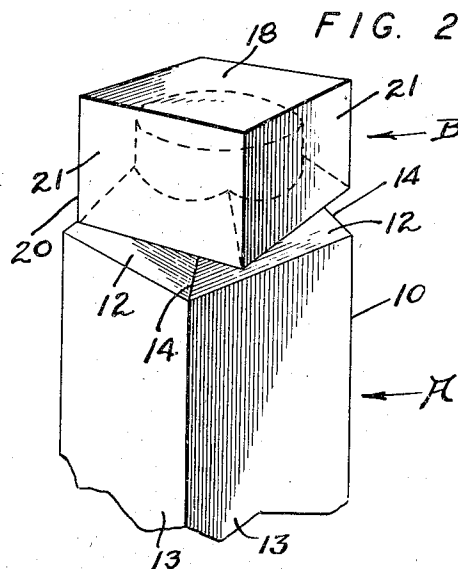
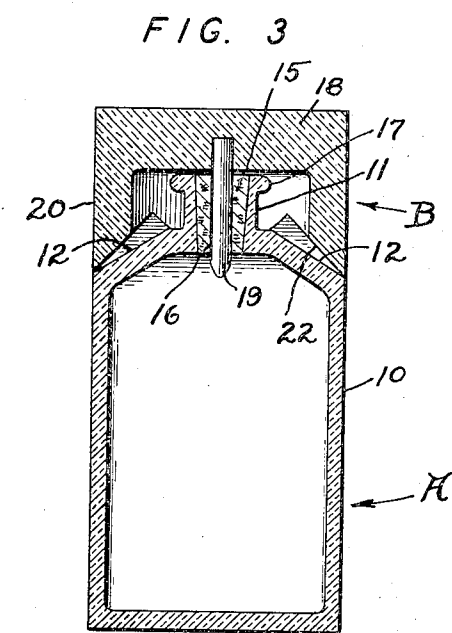
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A. D. McKELVY

2,476,155

COMBINATION BOTTLE AND CLOSURE CAP

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Inventor

ALFRED D. McKELVY

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Ernst & Loeb
Attorney

UNITED STATES PATENT OFFICE

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COMBINATION BOTTLE AND CLOSURE CAP

Alfred D. McKelvy, New York, N. Y.

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7 Claims. (Cl. 215—38)

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My invention relates to improvements in combination bottles and closure caps, particularly, though not exclusively, for liquid toiletries.

In packaging choice perfumes, colognes, and the like for the retail trade, it is desirable that such goods be put up in bottle-and-cap combinations of a type in which the cap may be quickly and easily removed from the bottle for the dispensation of the goods therefrom, and in which the cap may be readily reapplied to the bottle to close the same and tightly seal the remaining goods therein. It is further desirable that such bottle-and-cap combinations be of attractive design to grace the retailers' displays, as well as the dressing tables of the ultimate users of the goods. Combinations of the character indicated are desirably employed in designs wherein the bottle proper and the cap therefor are non-circular in transverse cross-section, the one meeting and seating against the other in a definite relative angular disposition to effect a predetermined unitary configuration continuing in fair or smooth-flowing fashion through the joint between bottle and cap. It is also desirable that the meeting portions of such bottle and cap be constructed to coact in a manner to guide the cap angularly into a seated and proper angular disposition relative to the bottle as the cap is brought home thereon to close the same. It is additionally desirable that such meeting portions of bottle and cap additionally coact to enable the seated cap to be twisted in relation to the bottle and thereupon to cause such twisting of the cap to initiate its removal from the bottle.

An object of the invention is to provide an improved combination of bottle and closure cap constructed to meet the various desiderata aforesaid.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings, Fig. 1 is a perspective view of a bottle and closure cap constructed in accordance with my invention, the cap being shown as having been brought home into its seated relation on the bottle to close the same; Fig. 2 is a perspective view of the structure shown in Fig. 1, the cap being illustrated as angularly and axially shifted relative to the bottle, as in the act of removing the cap from the bottle or bringing the same home into seated position upon the bottle; Fig. 3 is a longitudinal sectional view of the structure shown in Fig. 1; Fig. 4 is a perspective view of the bottle showing particularly

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the upper portion thereof, and Fig. 5 is a perspective view of the cap showing particularly the lower portion thereof.

Reference being had to the drawing, it will be observed that the illustrated form of my invention includes a bottle A and a cap B. The bottle A consists of a body 10 having an upwardly extending neck 11 at its top and beveled shoulder portions 12 about the base of the neck. The body 10 is uniformly rectangular in transverse cross-section from the base thereof to said shoulders 12, such construction providing planiform faces 13 from the upper edges of which the beveled shoulder portions 12 slope inwardly and upwardly joining each other along sloping ridges 14 intersecting the upright corners of the body 10. A liner 15 of cork or the like, having an axial bore 16 therein, is suitably fixed within the neck 11, such axial bore 16 serving as the duct in the neck through which the contents of the bottle is dispensed.

The cap B includes a crown portion 18 having a pin-like stopper 19 depending therefrom axially thereof, said stopper being adapted to be removably inserted into the bore 16 and to fit the same snugly. This stopper 19 may be molded into or otherwise suitably secured to the crown 18, or may be cast integrally therewith. Said cap B further includes a skirt portion 20 depending from the crown 18 and encompassing the stopper 19. The skirt 20 is rectangular in outline transversely of the cap to provide planiform faces 21 corresponding to the faces 13 of the body 10 of the bottle A. The lower edge 22 of the skirt B is internally beveled interfittingly to correspond with the shoulders 12 on the bottle A.

Upon the application of the cap B to the bottle A, said cap is manipulated to insert the stopper 19 into the bore 16 and to bring the cap home, seating it upon the bottle with the lower beveled edge 22 of the skirt 20 fitted to the beveled shoulders 12 of the bottle A. In thus assembling the cap and bottle, the corners thereof are aligned and their corresponding faces 13, 21 disposed in coplanar relationship and in unbroken continuation of each other. This relative angular dispositioning of a cap and bottle, as shown, results in a configuration of the assembly in hexahedral form. My invention, of course, contemplates articles of the instant nature in various polyhedral or other forms of irregular outline in transverse cross-section, any such selected form dictating the shapes required in both bottle and cap to produce the particular predetermined configuration in the bottle-and-cap assembly. Pref-

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erably, the lower edge 22 of the skirt 20 will be beveled somewhat more sharply than the shoulders 12 to insure a close fit between the seated cap and bottle along lines in the planes of the faces 13, 21 of the assembled bottle and cap.

Normally, the seated cap B is releasably held down upon the bottle A by the stopper 19 in frictional engagement with the wall of the bore 16 in the neck-liner 15, and is releasably held in its proper angular disposition relative to the bottle by reason of the interlocking engagement which occurs between the beveled edge 22 of the skirt 20 and the beveled shoulders 12 on the body 10 of the bottle. When the cap B, during its application to the bottle, occupies any angular disposition relative to the bottle roughly approximating the exactly correct ultimate disposition of said cap, the said beveled edge 22 of said skirt 20 and the beveled shoulders 12 on the bottle will coact to shift said cap and automatically guide it angularly relative to the bottle into its said correct ultimate disposition thereon. This automatic angular guiding movement of the cap B imparts a turning or twisting movement to the stopper 19 at a time when it is almost fully disposed within the bore 16, such twisting movement of the stopper, combined with the rectilinear movement thereof, being advantageous in overcoming the then relatively strong frictional resistance occurring between the stopper 19 and bore 16 in opposition to the seating of the cap on the bottle.

With the cap B seated on the bottle A and the stopper 19 fully inserted into the bore 16, it is difficult to remove the cap from the bottle by a "straight pull on said cap imparting only rectilinear movement to the stopper 19 in withdrawing it from said bore 16. Such difficulty in removing the seated cap B from the bottle A is avoided by first turning the cap one way or the other instead of exerting a straight pull upon it. The beveled shoulders 12 and the beveled lower edge 22 of the skirt 20 not only enable the seated cap B to be turned, but they coact in cam-like fashion upon the turning of the cap to initiate the removal of said cap from the bottle A. Thus, along with the twisting movement of the stopper 19 in the bore 16, occasioned by the turning of the cap B, a resulting rectilinear retracting movement of great force is automatically imparted to the stopper 19.

From the foregoing, it will be comprehended that the cap of a bottle-and-cap combination constructed in embodiment of my invention may be quickly and easily applied to the bottle and brought home into seated bottle-closing position thereon in a proper relative angular disposition mating the matching faces of bottle and cap, thereby effecting the particular predetermined configuration in the bottle-and-cap assembly. And it will be further comprehended that the cap may be quickly removed from the tightly sealed bottle with such ease as to avoid any danger of spilling the contents of the bottle in such operation.

Changes in the specific form of my invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. An article of the character described comprising a bottle and a closure cap of similar transverse rectilinear outline having matching planiform faces which mate and lie complanar in un-

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broken continuation of each other in a definite angular relationship between bottle and cap assembled, said bottle consisting of a body and a neck thereon provided with a bore therein, said cap consisting of a crown, a stopper depending from the crown, and a skirt also depending from the crown and encompassing the stopper, said stopper being adapted to be inserted into said bore upon the application of the cap to the bottle to close the same and adapted to be withdrawn from said bore upon the removal of the cap from the bottle, the skirt being adapted to encompass said neck with its lower marginal portion meeting the upper portion of the cap of the bottle in the bottle-closing position of the cap, said cap being reversely twistable relative to the bottle about the axis of said bore upon its application to and removal from the bottle, said body having beveled shoulder portions thereon in upward and inward continuation of the faces thereof, the lower edge of said skirt being internally beveled and adapted to coact with said beveled shoulder portions angularly to guide said cap into face-mating disposition relative to the bottle as the cap is brought home into bottle-closing position, said beveled edge of said skirt being adapted further to coact with said shoulder portions to initiate the withdrawal of the stopper from said bore upon the twisting of the cap in either direction.

2. An article of the character described comprising a bottle and a closure cap between which a definite angular relation is required to effect a predetermined configuration in the assembly of bottle and cap, said bottle consisting of a body and a neck thereon provided with a bore therein, said cap consisting of a crown, a stopper depending from the crown, and a skirt also depending from the crown and encompassing the stopper, said stopper being adapted to be inserted into said bore upon the application of the cap to the bottle to close the same and adapted to be withdrawn from said bore upon the removal of the cap from the bottle, the skirt being adapted to encompass said neck with its lower marginal portion meeting the upper portion of the body of the bottle in unbroken continuation thereof in the bottle-closing position of the cap, said cap being reversely twistable relative to the bottle about the axis of said bore upon its application to and removal from the bottle, said body having beveled shoulder portions thereon non-circularly encompassing said axis of said bore, the lower edge of said skirt being non-circular and adapted to coact with said beveled shoulder portions twistingly to guide said cap into said definite angular disposition relative to the bottle as the cap is brought home into bottle-closing position, said edge of said skirt being further adapted to coact with said shoulder portions to initiate the withdrawal of the stopper from said bore upon the twisting of the cap in either direction.

3. An article of the character described comprising a bottle and a closure cap adapted to be applied to the bottle in bottle-closing position thereon, said bottle consisting of a body, and a neck on said body provided with a bore therein, said cap consisting of a crown, and a stopper and a skirt, both depending from the crown, the skirt encompassing the stopper and adapted also to encompass said neck, said stopper being adapted to be slidably and twistably applied to said neck to close the bore therein upon the application of the cap to the bottle and adapted similarly to be removed from said neck to clear said bore upon the removal of the cap from the bottle, said cap

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being reversely twistable upon its application to and removal from the bottle to impart twisting movement to said stopper, said body having beveled shoulder portions thereon extending non-circularly about the axis of said bore, the lower edge of said skirt being correspondingly beveled and adapted, in the bottle-closing position of the cap, to coact with said beveled shoulder portions of the body in cam-like manner, upon the twisting of the cap in either direction, to initiate the removal of the cap from the bottle with an accompanying sliding-twisting removal of the stopper from said neck.

4. An article of the character described comprising a bottle and a closure cap having matching faces which mate in a definite angular relationship between bottle and cap in assembly for effecting a predetermined configuration in such assembly, said bottle consisting of a body and a neck thereon provided with a bore therein, said cap consisting of a crown, a stopper depending from the crown, and a skirt also depending from the crown and encompassing the stopper, said stopper being adapted to be inserted into said bore upon the application of the cap to the bottle to close the same and adapted to be withdrawn from said bore upon the removal of the cap from the bottle, the skirt being adapted to encompass said neck with its lower marginal portion meeting the body of the bottle in continuation thereof in the bottle-closing position of the cap, said cap being twistable relative to the bottle about the axis of said bore upon its application to and removal from the bottle, said body having a continuation of elongated beveled shoulder portions thereon, said shoulder portions being lengthwise angularly related and extending non-circularly about the axis of said bore, the lower edge of said skirt comprising a continuation of angularly related reaches corresponding in length and angularity with the length and angularity of said shoulder portions of said body and adapted to coact therewith in cam-like manner angularly to guide said cap into said definite angular disposition relative to the bottle as the cap is pressed home into bottle-closing position, and likewise to coact with said beveled shoulder portions of said body to initiate the withdrawal of the stopper from said bore upon the twisting of the cap relative to the bottle.

5. An article of the character described comprising a bottle and a closure cap adapted to be applied to the bottle in definite angular disposition with respect thereto to close the same, said bottle having a neck provided with a bore therein and angularly related beveled shoulders extending non-circularly about the axis of said bore, said cap consisting of a crown and a skirt on said crown having a beveled lower edge comprising angularly related reaches corresponding in length and angularity with the length and angularity of the beveled shoulders on said body, said cap further including a stopper depending from said crown and encompassed by said skirt, said stopper being adapted to be inserted into and withdrawn from said bore upon the application of the cap to and the removal thereof from said bottle, said skirt being adapted to encompass said neck and to seat along its lower beveled edge against the beveled shoulders on the bottle in the bottle-closing position of the cap, said beveled shoulders constituting cam-means on the body of the bottle and said beveled edge constituting cam-means on the skirt of the cap, said cam-means coacting

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upon the application of the cap to the bottle angularly to guide the cap into its said definite bottle-closing disposition, and coacting further to initiate the withdrawal of said stopper from said bore upon a twisting movement of the seated cap relative to said bottle.

6. An article of the character described comprising a bottle, a closure cap adapted to be applied to the bottle and to assume a definite ultimate angular disposition with respect thereto to close the same, said bottle having a neck thereon provided with a bore therein, said cap consisting of a crown, a skirt, and a stopper depending from the crown and encompassed by the skirt, said stopper being adapted to be inserted into and withdrawn from said bore in said neck upon the application of the cap to and the removal thereof from said bottle, said skirt being adapted to encompass said neck and to seat against the bottle in said bottle-closing disposition of the cap, cam-means on the bottle and cam-means on the skirt of the cap, the one cam-means coacting with the other under pressure-induced seating movement of the cap in all angular relationships between cap and bottle, except that relationship wherein the cap occupies its said ultimate angular disposition, the coaction of said cam-means with each other acting angularly to guide the cap into said bottle-closing disposition thereof, and acting further to initiate the withdrawal of the stopper from said bore upon a twisting movement of the seated cap.

7. An article of the character described comprising a bottle and a closure cap adapted to be applied to the bottle in a definite ultimate angular disposition with respect thereto in closing the same, said bottle having a neck thereon provided with a bore therein, said cap consisting of a crown, a neck-encompassing skirt, and a stopper depending from the crown within the skirt, said stopper being adapted to be inserted into and withdrawn from said bore upon the application of the cap to and the removal thereof from said bottle, means on the bottle and cooperating means on the skirt of the cap coacting under pressure-induced movement of the cap in its application to the bottle in all angular relationships between cap and bottle, except that relationship wherein the cap occupies its said ultimate angular disposition, the coaction of said means with each other acting angularly to guide the cap into its said bottle-closing disposition, and acting further to initiate the withdrawal of said stopper from said bore upon a twisting movement of said cap relative to said bottle.

ALFRED D. McKELVY.

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