June 24, 1958 L. L. LERNER 2,840,230

SEALED COSMETIC CONTAINER

Filed July 8, 1955

Fig. 1

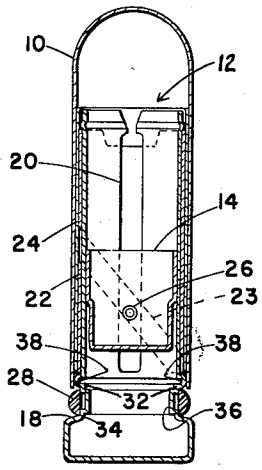


Fig. 2

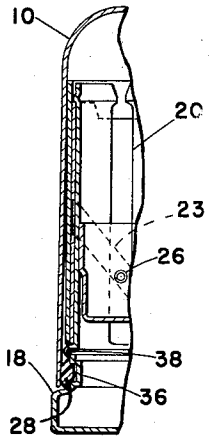


Fig. 3

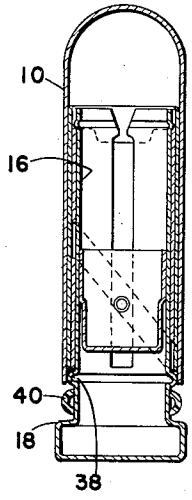
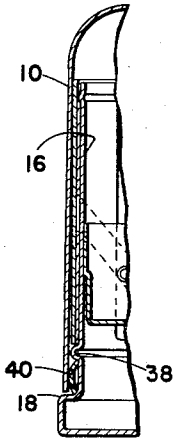


Fig. 4



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SEALED COSMETIC CONTAINER

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4 Claims. (Cl. 206—56)

This invention relates to stick-type cosmetic containers having removable telescopic caps, particularly those in which a cosmetic-containing cup is mounted for advancing and retracting, and pertains more specifically to means for sealing the cap to the housing of the container.

Numerous conventional cosmetic compositions, such as lipstick formulations, contain volatile ingredients, such as perfumes, which tend to vaporize even at room temperature. In addition, such compositions tend in some cases to be hygroscopic, so that upon exposure to a humid atmosphere droplets of moisture appear on the surface of the composition, detracting from its appearance and utility. Since a period of at least several weeks normally elapses between manufacture of such containers and their use by the ultimate consumer, the problem of loss of constituents by evaporation and the formation of water droplets on the cosmetic is a real one, particularly during the summer months.

One object of the present invention is to provide a simple and inexpensive means for sealing a cosmetic container against the atmosphere.

Another object is to provide a sealing construction for a cosmetic container of the type having a removable telescopic cap arranged to seal repeatedly each time the cap is placed on the container.

Still another object is to provide a means for frictionally interlocking a telescoping cap to a cosmetic container base more securely than has been possible with prior constructions and without their tendency to loosen and become inoperative under use conditions.

Other and further objects will appear from the drawings and from the description which follows.

In the drawings:

Fig. 1 is a view in vertical section of a lipstick container showing one embodiment of the invention with the cap partly removed and the seal broken;

Fig. 2 is a view in vertical section corresponding to a to a portion of Fig. 1 showing the cap in place on the container and sealed thereto;

Fig. 3 is a view in vertical section showing a second embodiment of the invention with the cap partly removed; and

Fig. 4 is a view in vertical section corresponding to a portion of Fig. 3 showing the cap in place and sealed to the container.

As shown in the drawings, use of the sealing means of the present invention requires very little modification of conventional cosmetic container constructions. As shown in Fig. 1, the container generally comprises a tubular cap **10** which fits telescopically over a housing designated generally by the numeral **12**, the cap **10** being of such size that it extends substantially the full length of the housing. These parts will normally be made of metal, although they may be made in whole or in part of other rigid material such as inelastic plastic.

Housing **12**, as shown in Fig. 1 is open at its upper end and closed at its lower end. Mounted within the housing is a cup **14** adapted to contain a stick of lipstick or other cosmetic material, cup **14** being mounted for sliding reciprocating movement axially of the housing. Housing **12** includes a base member **16** having a radially projecting shoulder **18** at its lower closed end and being provided with a vertical slot **20** extending axially thereof. Mounted externally of base **16** is a sleeve member **22** provided with a helical slot **23**, the sleeve **22** being held in place against base **16** by means of an outer covering or sleeve **24**. The dimensions of the parts are such that sleeve **22** is frictionally held within sleeve **24**, these two members together being rotatable axially with respect to base **16**. Cup **14** is provided with a projecting lug or pin **26** extending through the helical slot of sleeve **22** into the vertical slot **20** of base member **16** so that rotation of base member **16** with respect to sleeves **22** and **24** causes cup **14** to be advanced and retracted within the base.

Cap **10**, as shown in Fig. 1, embraces the housing **12** telescopically. However, because of limitations on manufacturing tolerances and the virtual impossibility of avoiding slight out-of-roundness in the manufacture of such caps and housings, there is no air-tight seal between cap **10** and housing **12**. Indeed, even if such a tight fit could be obtained between cap **10** and outer sleeve **24**, there would still remain a leakage pathway between sleeves **22** and **24** and base **16**.

In the embodiment shown in Fig. 1, the seal is provided by means of an annular member **28** of an elastically deformable rubber-like material, such as natural or synthetic rubber, rubber-like vinyl resin composition, or rubber-like polyethylene composition, mounted on base **16** adjacent the closed end and near the radially projecting shoulder **18**. If desired, annular member **28** may be colored to match the color of the remainder of the housing **12**. Annular member **28** is mounted on a pair of spaced annular ribs **32**, **34** on the base, the two ribs being separated by a radially inwardly extending concavity **36**, as shown in Fig. 1. Annular member **28** normally has a convex outer face and a flat inner face and has an outer diameter slightly greater than the inner diameter of cap **10**. Annular bead **38** is provided to cooperate with shoulder **18** in maintaining annular member **28** in axially fixed position on the base member of the housing.

Because of the inherent resiliency and elasticity of annular member **28**, it is capable of radially inward yielding compression as cap **10** is advanced over it, as shown in Fig. 2, the central portion of member **28** being forced into concavity **36** to provide a substantially air-tight seal between cap **10** and base member **16**, the open end of cap **10** seating against shoulder **18**. Because of the inherent resiliency and elasticity of annular member **28**, any slight variations in diameters, as well as any out-of-roundness of either the cap or the housing, is compensated for to ensure a tight seal along the periphery of the inner wall of cap **10**.

Upon removal of cap **10** annular member **28** regains its original shape, as shown in Fig. 1, and is ready to effect a new sealing operation when cap **10** is replaced in position.

In another embodiment of the invention, as shown in Figs. 3 and 4, the elastically deformable annular member of rubber-like material **40** normally has a concavo-convex cross-sectional configuration with its concave face adjacent base **16**. As cap **10** is advanced over annular member **40**, the concave face of the anular member is flattened out, as shown in Fig. 4, to provide a yielding air-tight seal. In this embodiment also annular bead **38** cooperates with shoulder **18** to retain annular member **40** in axially fixed position. In this embodiment, however, it is desirable, as shown in Figs. 3 and 4, to have the width of the space between shoulder **18** and bead **38**

somewhat greater than the normal width of annular member **40** so that the latter will have space in which to flatten out as it is compressed radially inwardly.

In manufacturing the device according to either embodiment, the annular sealing member may be conveniently molded or otherwise formed as a separate unit and then assembled onto the housing **12**, its resiliency being preferably such that it can be stretched to fit over annular bead **38** and then contracted into its assembled position between said bead and shoulder **18**. Splitting of the annular member diametrically for assembly purposes or otherwise is generally undesirable, both because of potential leakage at the split and because a split ring is apt to loosen or break under use conditions.

It will be noted that in both embodiments there are no openings through the housing **12** which extend below the annular zone of sealing engagement between the cover and the sealing member and the cover is imperforate above said member, as is requisite if sealing action is to be obtained. It is desirable to locate the sealing member as close to the bottom of the housing as possible, since there will normally be openings into the housing at points above the bottom, as in the embodiments shown.

This sealing action is particularly important in the case of certain lipstick formulations which contain such volatile ingredients as perfumes, etc. Moreover, various cosmetic compositions display hygroscopic properties, tending to absorb moisture from the atmosphere which may appear in the form of small droplets on the surface of the composition under humid conditions. These problems are enhanced by modern shipping and merchandising procedures, under which periods of a month or more may elapse between manufacture and sale, during which the cosmetic container is exposed not only to normal merchandising store atmosphere but also may encounter in transit exposure to such conditions as exhaust fumes, solvent fumes, gas fumes, and atmospheres peculiar to certain areas, such as paper mills or stockyards, all of which tend to affect the taste, odor, or color of the cosmetic composition, particularly lipstick. The present invention provides a solution to these problems.

In addition to its sealing function, the sealing member serves as a means for securely holding the cap and housing together when the cosmetic is not in use, in this respect being more reliable and satisfactory for the purpose than struck out tangs or ribs usually used for the purpose, which are apt to become distorted, worn and ineffective under use conditions. Moreover, the elastic material of the sealing member offers a substantially greater frictional resistance to the sliding off of the cap than does metal of which such tangs or ribs are normally formed.

While the cap, housing, and sealing member are all of circular cross-section in the embodiments illustrated, this is not essential, as they may be oval or polygonal. The term "annular" as used herein is intended to include such departures from a true circular cross-section.

Although specific embodiments of this invention have been described herein, it is not intended to limit the invention solely thereto, but to include all of the obvious variations and modifications within the spirit and scope of the appended claims.

I claim:

1. In a cosmetic container of the character indicated, an elongated tubular body, a tubular closure cap therefor, means for supporting a cosmetic stick or the like within said body and for dispensing the same out one end of said body, said container having adjacent the other end of said body a pair of axially spaced radial shoulders, axially spaced first and second annular ribs on said container between said shoulders and respectively adjacent each of said shoulders, thereby defining a circumferential groove between said ribs, and a circumferentially continuous yieldable plastic member axially retained between said shoulders and radially retained by both said ribs, said member having a convex outer surface of maximum unstressed diameter in excess of the bore diameter of said cap and of minimum diameter less than the bore diameter of said cap, said closure cap fitting over said one end and having frictional engagement with said member.

2. In a cosmetic container of the character indicated, two relatively rotatable elongated members, one contained within the other, the outer of said members being tubular and having an open end for the dispensing of a cosmetic stick or the like, said members including means coacting upon relative rotation to propel and repel the cosmetic stick or the like out said open end, the inner of said members including a base extending accessibly beyond said tubular member at the end opposite said open end, a tubular closure cap to removably close the open end of said container and extending in axially overlapping relation with a part of said base, said part of said base having two axially spaced radial shoulders of minimum diameter less than the bore diameter of said cap, and a circumferentially continuous yieldable plastic seal ring including portions axially retained by said shoulders, said ring having a convex outer surface of maximum unstressed diameter in excess of the bore diameter of said cap and of minimum diameter less than the bore diameter of said cap, said closure cap fitting over said one end and frictionally and sealingly engaging said seal ring.

3. A cosmetic container as defined in claim 2 wherein said base is indented intermediate the side edges of said seal ring to form a channel into which the intermediate portion of said seal ring may be compressed.

4. A cosmetic container as defined in claim 2 wherein said seal ring has a concave inner surface spaced at its intermediate portion from said base when not under compression.

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