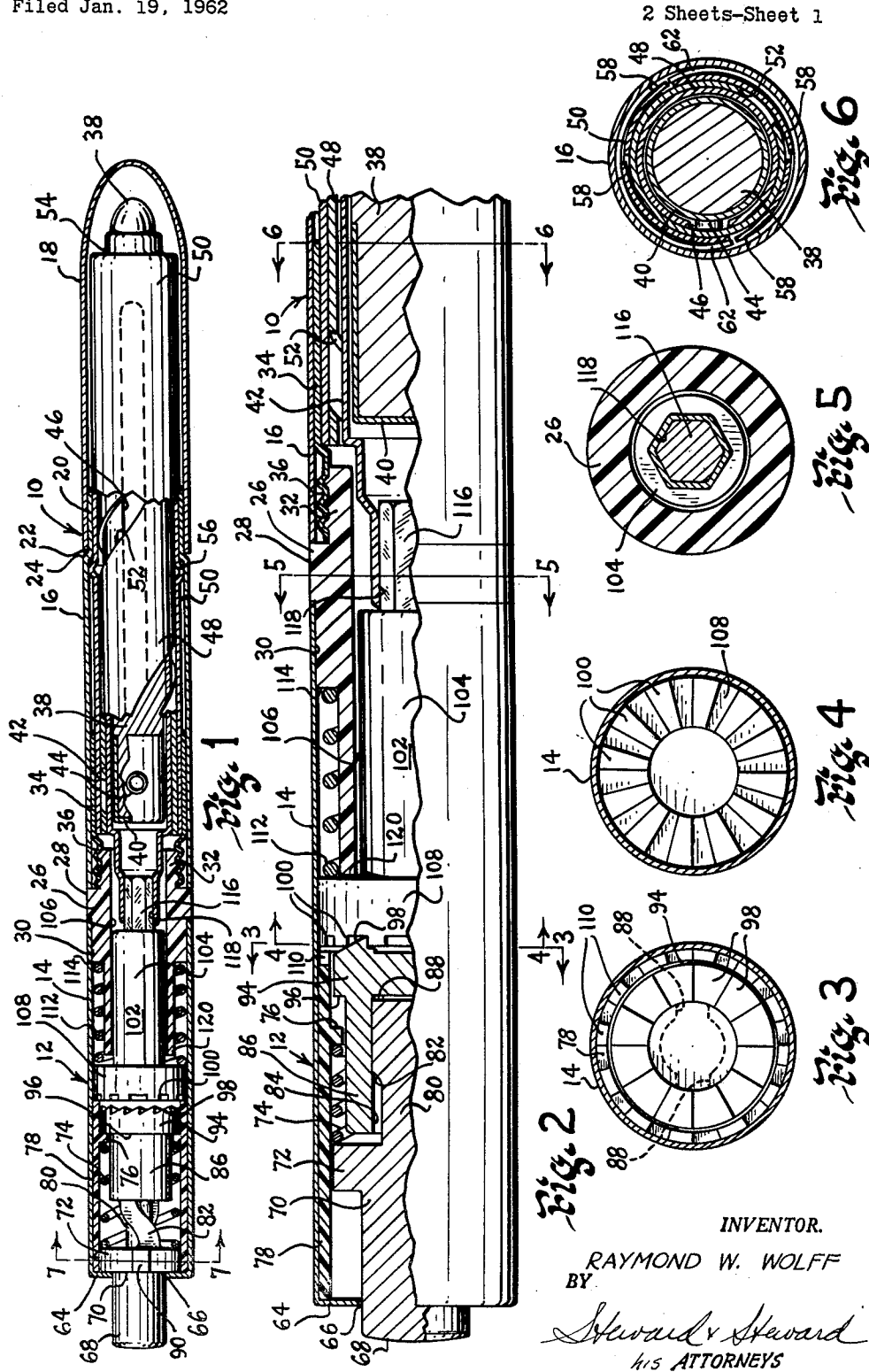


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R. W. WOLFF
COSMETIC CONTAINER

3,132,743

Filed Jan. 19, 1962



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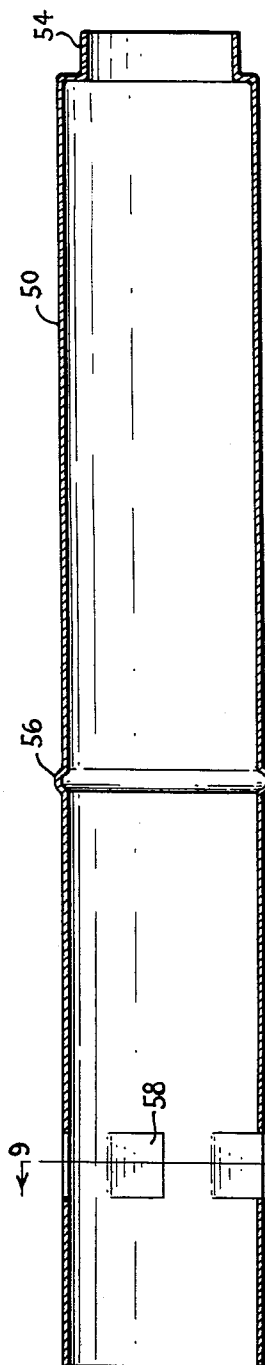


Fig. 8

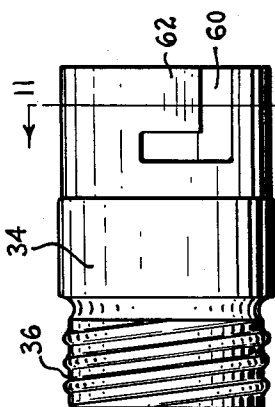


Fig. 10

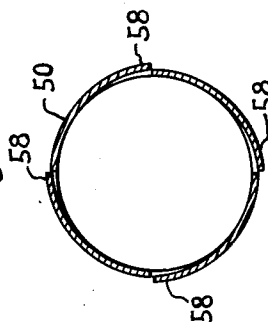


Fig. 9

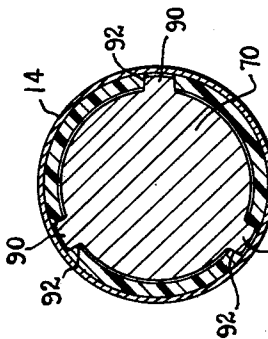


Fig. 7

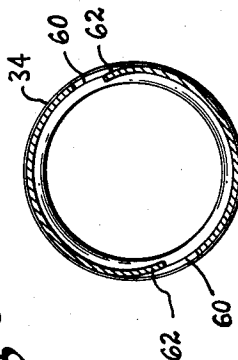


Fig. 11

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3,132,743

COSMETIC CONTAINER

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6 Claims. (Cl. 206—56)

The invention relates generally to containers for long, thin stick-like materials such as pencil leads and the like and, especially, to containers in which a cosmetic in stick form, such as a lipstick or eyebrow pencil, is adapted to be advanced and retracted.

It has become customary in the cosmetic container art to utilize what is known as the "swivel" type of mechanism for propelling and retracting stick type cosmetics from their containers. This is particularly true with respect to lipstick containers which comprise the bulk of this type of cosmetic.

In the "swivel" type of container construction the cosmetic is placed in a carrier that lies within an inner shell having a longitudinal slot formed in it. The inner shell, in turn, lies within an outer shell that has a continuous spiral slot formed in it. A projection on the cosmetic carrier extends through the longitudinal slot in the inner shell and into the spiral slot in the outer shell. When the outer and inner shells are rotated relative to each other, the spiral slot in the outer shell carries the projection on the carrier along the longitudinal slot and moves the carrier longitudinally of the inner shell.

The inner shell is ordinarily fixed to the rearward outer portion of the container while the spiral, or outer, shell is ordinarily fixed to the forward portion of the container. In use, the forward portion of the container is grasped by the user in the fingers of one hand and the rearward portion is grasped by the fingers of the other hand. The user then rotates one of the portions relative to the other. This causes the necessary relative rotation between the inner and outer shells and either propels or retracts the cosmetic stick depending upon the direction of relative rotation.

The present invention has for its object the provision of novel actuating means for effecting the relative rotation between the inner and outer shells that is required for the advancement or retraction of the cosmetic stick in a "swivel" type container.

It is a further object of the invention to provide such actuating means that are capable of advancing or retracting the cosmetic stick quickly. Another object of the invention is to provide actuating means that are simple to operate and positive in action. Still another object of the invention is that the means for effecting relative rotation of the inner and outer shells shall be such as to permit their use in cosmetic containers of the "refillable" type in which a new cosmetic stick is inserted in the container after the original stick has been exhausted.

For the purpose of illustrating one manner in which the invention may be made and used, a presently preferred embodiment of the invention is shown in the accompanying drawings, of which:

FIG. 1 is a longitudinal sectional view of a lipstick container constructed in accordance with the teachings of the invention showing the various parts of the container in their non-actuated positions;

FIG. 2 is an enlarged, partial longitudinal sectional view of the lipstick container of FIG. 1 showing the positions of the various parts of the container during the inward stroke of the actuating plunger;

FIG. 3 is a transverse, cross-sectional view taken along line 3—3 in FIG. 2 looking in the direction of the arrows;

FIG. 4 is a transverse, cross-sectional view taken along

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the line 4—4 in FIG. 2 looking in the direction of the arrows;

FIG. 5 is a transverse, cross-sectional view taken along the line 5—5 in FIG. 2 looking in the direction of the arrows;

FIG. 6 is a transverse, cross-sectional view taken along the line 6—6 in FIG. 2 looking in the direction of the arrows;

FIG. 7 is a transverse, cross-sectional view taken along the line 7—7 in FIG. 1 looking in the direction of the arrows;

FIG. 8 is a longitudinal, sectional view of the outer, intermediate protective shell for the lipstick;

FIG. 9 is a transverse, cross-sectional view taken along the line 9—9 in FIG. 8 looking in the direction of the arrows;

FIG. 10 is an elevational view of the tubular piece into which the outer, intermediate protective shell is fitted; and

FIG. 11 is a transverse, cross-sectional view taken along the line 11—11 in FIG. 10 looking in the direction of the arrows.

One form which the invention may take is shown in the drawings and particularly in FIGS. 1 and 2. The lipstick container shown there comprises two main sections, a forward section 10 housing the lipstick pomade and a rearward section 12 housing a manually operable plunger and other actuating means for the lipstick. Each section of the container has an outer protective shell, the rearward outer shell being designated by the reference numeral 14 and the forward outer shell by the reference numeral 16. A protective cap 18 is provided for the forward section 10 and frictionally engages the narrow portion 20 of the outer shell 16. The end 22 of the cap 18 abuts against the shoulder 24 formed in the shell 16 at the change in diameters.

The two outer shells 14 and 16 are held together by a core member 26 that has a circumferential flange 28 formed therein. The rearward outer shell 14 frictionally engages an adjacent outer surface 30 on the core 26 and abuts against one side of the flange 28. A threaded stub 32 of reduced diameter is provided at the front or forward end of the core 26 and extends forwardly of the flange 28, that is, to the right of the flange as seen in FIGS. 1 and 2. A short tubular piece 34 having a correspondingly threaded end 36 is screwed onto the stub 32. The outer surface of the tubular piece 34 frictionally engages the forward outer shell 16 and holds the shell in place against the front face of the flange 28 on the core 26.

In addition to housing the lipstick pomade, the forward section 10 of the container also houses rotatable driving means for moving the lipstick pomade longitudinally of the outer shell 16. As shown, these means comprise a modified form of the usual "swivel" type lipstick container in which relative rotation between the lipstick carrier and a surrounding tubular shell serves to move the lipstick relative to the container.

In the present construction one end of a long thin lipstick pomade 38 is inserted into a cup-like carrier 40. The carrier 40 resides within a rotatable cylindrical shell 42, usually designated as the "B" shell, and has a lateral projection 44 that extends through a straight longitudinal slot 46 formed throughout the greater portion of one side of the shell 42. Two additional rotatable shells 48, 50 are provided intermediate the cylindrical shell 42 and the tubular piece 34. The inner intermediate shell 48, usually designated as the spiral shell, closely fits over the cylindrical shell 42 but enough clearance is provided to permit relative rotation between the shells. A spiral, or helical, slot 52 is formed in the inner intermediate shell 48 and

the projection 44 on the lipstick carrier 40 extends into this slot.

The outer intermediate shell 50, usually designated as the "A" shell, serves as an outer protective cover for the lipstick pomade 38 and tightly surrounds the inner intermediate shell 48 so that the rotation of the "A" shell 50 also serves to rotate the inner spiral shell 48. At its forward end the "A" shell 50 is necked down to form a supporting collar 54 for the lipstick pomade 38 and a raised circumferential ridge 56 is formed about the mid-portion of the shell to serve as a means for retaining the shell 50 within the outer forward shell 16. Accordingly, the outer diameter of the ridge 56 is greater than the inside diameter of the necked down portion 20 of the outer shell 16 so as to prevent the intermediate shells 48, 50 from moving past the outer shell.

Relative rotation between the spiral shell 48 and "A" shell 50 on the one hand and the lipstick carrier 40 and "B" shell 42 on the other hand results in the projection 44 on the carrier engaging a side of the spiral slot 52 in the inner spiral shell 48. Since the projection 44 is limited to longitudinal travel within the slot 46 formed in the cylindrical "B" shell 42, the engagement with the spiral slot 52 serves to cam the projection longitudinally in the slot 46. Thus, in this manner, the lipstick carrier 40, and hence the lipstick pomade 38, is either advanced or retracted within the container.

Unlike the usual "swivel" type construction in which relative rotation between the spiral shell and the projection on the lipstick carrier may occur in either direction, the lipstick container shown in the present case has been modified to limit this relative rotation to a single direction. This is done by incorporating a ratchet and dog mechanism on the outer intermediate or "A" shell 50 and the tubular piece 34.

As will be best seen in FIGS. 8 and 9 the "A" shell 50 has four outwardly extending tabs 58, 58 at equally spaced points around the circumference of the shell. Each tab is formed by shearing the shell along three sides and simultaneously bending the tab outwardly away from the shell. By so upsetting the shell 50 at these points, the tabs 58, 58 form a ratchet of rigid tapered teeth in the exterior of the shell.

Similar tabs are formed in the tubular piece 34. Each side of the piece is formed with an L-shaped slot 60, 60 and the material bounded by the slot is pushed inward to form two tapered tabs or teeth 62, 62 on the interior of the tubular piece. The teeth 62, 62 on the piece, because of the slots 60, 60 are relatively flexible as compared to the teeth 58, 58 on the "A" shell 50. Accordingly, when the shell 50 rotates counterclockwise, as viewed in FIG. 6, the teeth 62, 62 on the piece 34 readily bend outwardly to pass the teeth 58, 58 on the shell 50 without undue wear. However, should an attempt be made to rotate the "A" shell 50 clockwise, as viewed in FIG. 6, then the butt ends of the teeth 58, 58, 62, 62 on the shell 50 and the tubular piece 34 will engage each other to prevent it.

By reason of this arrangement, the rotatable driving means for the lipstick serve to move the lipstick pomade in one direction only. In the container shown in the drawings the lipstick pomade 38 is withdrawn upon the relative rotation between the shells 48, 50 and the "B" shell 42 and lipstick carrier 40. However, it is to be understood that the lipstick could be advanced by such action if this were desired. In the form of the invention shown however, it is preferred to advance the lipstick by actuating means in the rearward section 12 of the container.

At the end 64 of the container the rearward outer shell 14 has an opening 66 through which extends the finger portion 68 of a reciprocable plunger 70. A flange 72 is formed on the plunger 70 at the base of the finger portion 68 and serves to limit the extent to which the plunger projects beyond the shell 14. The plunger 70 is

urged outwardly of the container by a coil spring 74 positioned between the flange 72 and a downwardly extending annular stop 76 formed on a tubular sleeve that surrounds the reciprocable plunger at the closed end 58 of the rearward outer shell 14.

The plunger 70 has an inwardly extending projection 80 on the inner side of the flange 72 and a raised inclined helical thread 82 is formed on the projection. The projection 80 extends into a recess 84 in a first clutch member 86, the recess being provided internally of the body of the clutch member and having a helical groove 88 formed within its side. As a result of the engagement between the helical thread 82 on the plunger 70 and the helical groove 88 in the recess 84 the plunger and first clutch member 86 are coupled together and ordinarily move together longitudinally. During this longitudinal movement, the plunger 70 is locked against rotation by three lugs 90, 90 on the circumference of the flange 72 which slide in longitudinal slots 92, 92 formed in the tubular sleeve 78.

The body of the first clutch member 86 is cylindrical and has a diameter slightly less than the diameter of the opening formed by the annular stop 76 on the sleeve 78. At the inward end of the clutch member 86 there is an enlarged flange portion 94, and the shoulder 96 resulting from the change in diameter between the body and flange portions 94 of the clutch member 86 abuts against the front surface of the annular stop 76 to limit the rearward movement of the clutch member.

At the face of the flange 94 the first clutch member 86 has a plurality of radially disposed teeth 98 for engagement with a plurality of similar, radially disposed teeth 100 on the rearward face of a second clutch member 102. The teeth 98 on the first clutch member 86 are beveled in one direction so that effective engagement of the clutch members 86, 102 occurs only upon rotation of the first clutch member 86 in clockwise direction as viewed from the rearward end of the container. Rotation of the first clutch member 86 in the opposite direction, that is, in a counterclockwise direction as viewed from the rearward end of the container, simply causes the beveled sides of the teeth 98 on the first clutch member 86 to slide over the teeth 100 on the second clutch member 102.

The second clutch member 102 is formed with a cylindrical body 104 that fits within the central opening 106 of the core 26. An enlarged flange portion 108 is provided at the rearward end of the body 104 and the diameter of the flange portion is only slightly less than the inside diameter of the rearward outer shell 14. The outer peripheral portion of the rearward face of the flange 108 is disposed opposite the forward end of the tubular sleeve 78. This end of the sleeve 78 is shaped to form a series of locking teeth 110, 110 that are normally engaged by the radially disposed teeth 100 on the face of the flange 108 on the second clutch member under the urging of a coil spring 112 mounted between flange 108 and a shoulder 114 on the core 26. As long as the teeth 100 on the second clutch member 102 are engaged with the teeth 110 on the sleeve 78, rotation of the clutch member 102 is prevented.

At its forward end the body 108 of the second clutch member 102 has a hexagonal projection 116 that fits within a hexagonal socket 118 formed at the rearward end of the cylindrical shell 42. Rotation of the second clutch member 102 is thereby transmitted to the cylindrical shell 42 and to the lipstick carrier 40 disposed within the cylindrical shell.

In the use of the container the cap 18 is first removed to permit the advancement of the lipstick pomade 38. A force is then applied to the end of the finger portion 68 of the plunger 70 to overcome the opposing force of the spring 74. As the plunger 70 moves inwardly so also does the first clutch member 86 because of the coupling of the clutch member 86 to the

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plunger 70 by reason of the engagement of the helical thread 82 with the helical groove 88 in the recess 84. No rotation of the clutch member occurs during this initial movement of the first clutch member 86 inwardly away from the annular stop 76 on the sleeve 78.

Continued inward movement of the plunger 70 brings the first clutch member 86 into engagement with the second clutch member 102 and moves the second clutch member out of engagement with the locking teeth on the tubular sleeve 78. The plunger 70, first clutch member 86 and the second clutch member 102 all move forwardly together until the front face of the flange 108 on the second clutch member 102 strikes against the end 120 of the core 26. When this occurs the two clutch members 86 and 102 can no longer move longitudinally. Any farther movement of the plunger 70 inwardly results in the projection 80 on the plunger penetrating deeper into the recess 84 in the first clutch member 86. Because of the helical character of the groove 88 in the recess 84 this inward penetration of the projection 80 causes the first clutch member 86 to rotate in a clockwise direction as viewed from the rearward end of the container. Inasmuch as the teeth 98 on the first clutch member 86 are engaged with the teeth 100 on the second clutch member 102 the second clutch member is also rotated at the same time.

Rotation of the second clutch member 102 causes the clockwise rotation of the "B" shell 42 since the hexagonal socket 118 of the shell 42 fits over the hexagonal projection 116 on the clutch member 102. As the "B" shell 42 rotates, the longitudinal slot 46 in the shell causes the lateral projection 44 on the lipstick carrier 40 to rotate in the same direction and to move against the side of the spiral slot 52 in the spiral shell 48. The spiral slot 52 cams the projection outwardly in the slot 46 in the "B" shell 42 and the lipstick carrier 40 and the lipstick pomade 38 are advanced forwardly with respect to the container.

When the plunger 70 is released by the user, the spring 74 and the spring 112 move the plunger 70 and the two clutch members 86 and 102 rearwardly. Once the second clutch member 102 re-engages the tubular sleeve 78 its rearward movement ceases and the teeth 110 on the sleeve engage the teeth 100 on the clutch member 102 to lock it against rotation.

The first clutch member 86 continues to move rearwardly for a short distance with the plunger 70 until the flange 108 comes up against the annular stop 76. However, the plunger 70 continues to move rearwardly under the urging of the spring 74. Inasmuch as the first clutch member can no longer move rearwardly, the continued rearward movement of the plunger 70 causes the clutch member 86 to rotate counterclockwise until it has returned to its original position. In the meantime the plunger 70 is moved rearwardly until it abuts the end of the rearward outer shell 14.

The plunger 70 is again depressed and the just-described cycle of operation is repeated until the lipstick pomade 38 has been advanced sufficiently as to permit its application to the lips of the user. The action is very rapid and the lipstick may be advanced very quickly by a few repeated strokes of the plunger 70.

Retraction of the lipstick pomade 38 is accomplished by rotating the outer intermediate, or "A" shell 50 relative to the outer forward shell 16. This is done by the user grasping the "A" shell 50 in the fingers of one hand and the outer shell 16 in the fingers of the other hand and then twisting the intermediate shell 50 with respect to the outer forward shell 16. Because of the ratchet construction on the tubular piece 34 and the shell 50 twisting or rotation of the shell 50 is only permitted in a counterclockwise direction as viewed from the front of the container. Rotation of the shell 50 in this direction also rotates the spiral shell 48 in the same

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direction and the spiral slot 52 in the shell 48 cams the projection 44 on the lipstick carrier 40 inwardly in the slot 26 to retract the lipstick pomade 38. Relative rotation between the spiral shell 48 and the lipstick carrier 40 is assured because the cylindrical, or "B" shell 42 is coupled to the second clutch member 102 which is held against rotation by the teeth 110 on the tubular sleeve 78. Inasmuch as the projection 44 on the carrier 40 is imprisoned within the longitudinal slot 26 in the shell 42 the carrier 40 is also held against rotation.

While the lipstick container shown in the drawings and described above utilizes the plunger 70 to actuate the lipstick pomade 38 outwardly of the container and the "swivel" construction to retract the pomade, it will be readily appreciated that these directions could be reversed if desired.

In line with a present trend in cosmetic articles, the lipstick pomade 38 of the container can be replaced when exhausted. The tubular piece 34 is first unscrewed from the threaded stub 32 on the core 26. This is done by grasping the outer shell 16 and rotating it counterclockwise as viewed from the front of the container. Since the outer shell 16 is press fitted onto the tubular piece 34 this action serves to unscrew the piece from the core 26. With the forward section 10 removed, the "B" shell 42 and the lipstick carrier 40 can be removed as a unit from the rearward end of the "A" shell 50 and the spiral shell 48. Inasmuch as the spiral slot 52 is continued to the rearward edge of the spiral shell 48, no difficulty is encountered either in withdrawing the exhausted lipstick or inserting the refill.

While the invention has been illustrated by applying it to a lipstick container it will be readily realized that its field of application is not so limited and the invention may be employed in other types of pencil-like containers just as well.

What is claimed is:

1. A cosmetic container comprising

- (a) an outer shell,
- (b) a cosmetic carrier within the outer shell,
- (c) rotatable driving means for moving the cosmetic carrier longitudinally of the outer shell,
- (d) a reciprocable plunger at one end of the outer shell, said plunger having a helical thread formed on the inner end thereof,
- (e) a first clutch member with a helically formed recess engaging the helical thread on the reciprocable plunger, and
- (f) a second clutch member secured to said rotatable driving means and engageable with said first clutch member upon movement of the reciprocable plunger whereby the longitudinal movement of the plunger is translated into rotary movement of the driving means to move the cosmetic carrier longitudinally of the outer shell.

2. A cosmetic container as set forth in claim 1 wherein said first and second clutch members are provided with teeth that interengage upon longitudinal movement of the plunger.

3. A lipstick container comprising

- (a) an outer shell,
- (b) a lipstick carrier within the outer shell, said carrier having a lateral projection thereon,
- (c) an intermediate shell between the lipstick carrier and the outer shell, said intermediate shell having a spiral slot formed therein into which extends the lateral projection on the lipstick carrier,
- (d) rotatable driving means for effecting relative rotation between the lipstick carrier and the intermediate shell, to move the carrier longitudinally of the outer shell,
- (e) a reciprocable plunger at one end of the outer shell, said plunger having an inclined thread formed on the inner end thereof,

- (f) a first clutch member having an inclined recess corresponding to the thread formed on the reciprocal plunger, said first clutch member engaging the plunger, and
- (g) a second clutch member secured to said rotatable driving means and engageable with the first clutch member upon movement of the reciprocable plunger whereby the longitudinal movement of the plunger is translated into rotary movement of the driving means to effect longitudinal movement of the lip-stick carrier relative to the outer shell. 5 10
4. A cosmetic container comprising
- (a) a rotatable cylindrical shell,
- (b) an intermediate shell having a spiral groove formed therein surrounding said cylindrical shell, 15
- (c) a cosmetic carrier positioned within the cylindrical shell and rotatable therewith, said carrier being capable of longitudinal movement with respect to said cylindrical shell,
- (d) an external projection on the cosmetic carrier extending outwardly into said spiral groove in the intermediate shell whereby relative rotation between said cylindrical and intermediate shells moves the projection and said carrier longitudinally of said cylindrical shell, 20 25
- (e) a first clutch member having a plurality of teeth and a longitudinal recess with a helical groove formed in the inner surface thereof,
- (f) a second rotatable clutch member having a plurality of teeth, said second clutch member being longitudinally movable for engagement with said first clutch member, 30
- (g) a longitudinally reciprocable actuating member for the container, said actuating member having a longitudinal projection with an external helical 35

thread, said projection extending into the groove in said recess on the first clutch member whereby reciprocal movement of the actuating member results in rotation of said first and second clutch members, and

- (h) means coupling said second clutch member to said cylindrical shell to rotate said cylindrical shell relative to said intermediate shell whereby said carrier is moved longitudinally of the container upon actuation of said reciprocable member.

5. A cosmetic container as set forth in claim 4 having an outer shell enclosing the recited elements and wherein said longitudinally reciprocable actuating member comprises a plunger, part of which extends rearwardly through an opening in the outer shell.

6. A cosmetic container as set forth in claim 5 having a sleeve fixed to the outer shell, said sleeve having interlocking means thereon and wherein said second clutch member engages the sleeve fixed to the outer shell whenever said second clutch member is not engaged with said first clutch member whereby said second clutch member is locked against rotation during its engagement with the sleeve.

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