

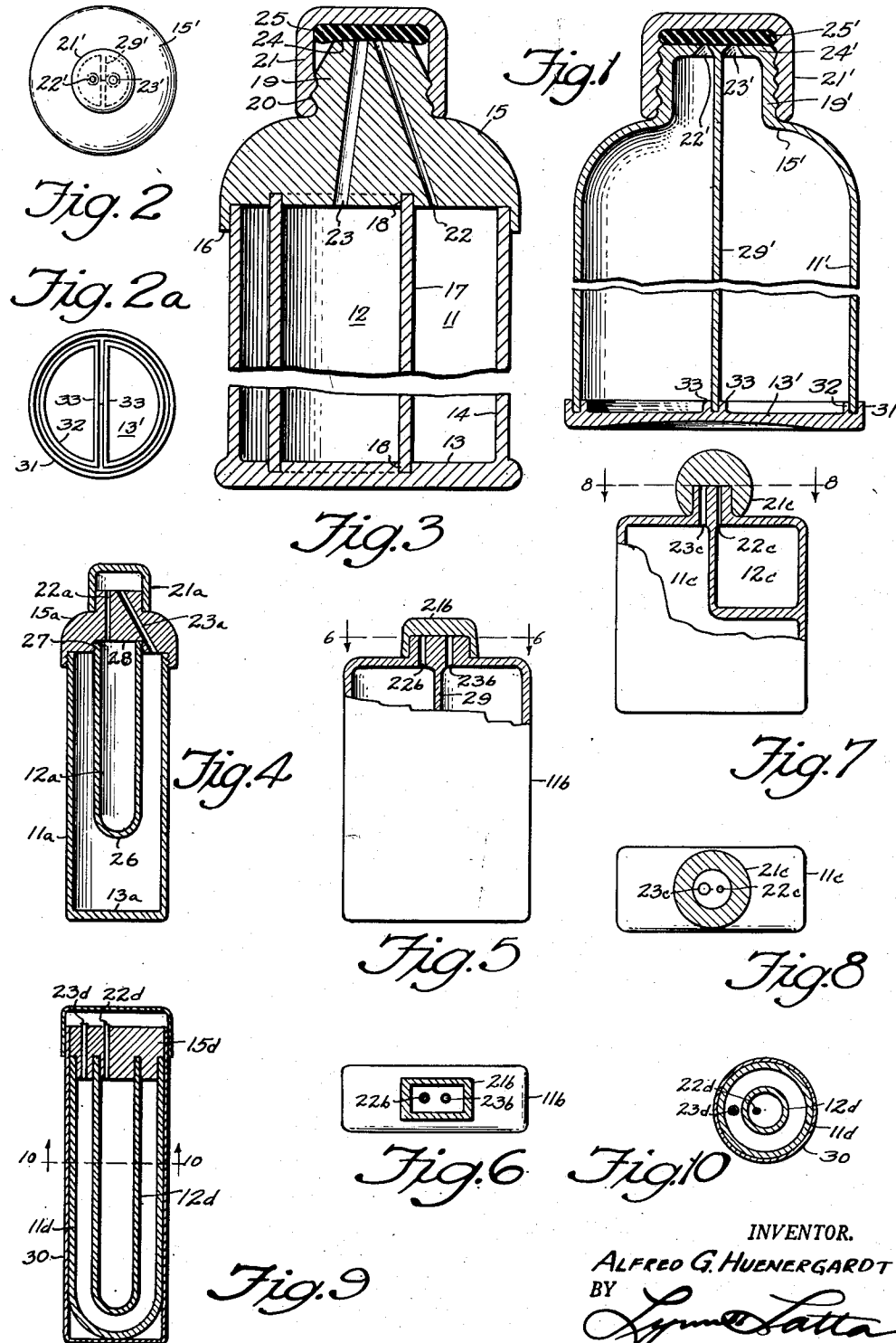
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MULTIPLE LIQUID DISPENSING CONTAINER

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MULTIPLE LIQUID DISPENSING
CONTAINER

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This invention relates to liquid dispensing containers. It has as its general object to provide a container from which a plurality of incompatible liquids (such as an oil and an aqueous liquid) can be simultaneously dispensed. One of the specific objects of the invention is to provide an improved dispenser for hairdressing liquids that will not remain in permanent emulsion in a single mixture, for example, an oil containing lanolin and an aqueous liquid containing alcohol, such as bay rum. For proper treatment of the human scalp, a mixture of such substances in a predetermined proportion provides an excellent scalp tonic and hairdressing lotion. However, because of their incompatibility, it is impossible to maintain a satisfactory emulsion of these liquids in a mixture which can be used at any time without violent shaking of the container to re-establish the emulsion. The answer to this problem is to provide separate containers from which the two liquids can be dispensed simultaneously into the palm of the hand. A particular object of my invention is to provide such a container which will dispense the several liquids in a predetermined proportion.

I am aware that there have been a number of prior proposals for a multiple compartment container adapted to dispense incompatible liquids. However, some of such prior proposals have embodied the concept of bottles having neck openings of such size as to permit the contents of the bottle compartments to be poured therefrom. For the purposes of the present invention, it is not practicable to attempt to provide for a completely free-pouring flow from the bottle compartments, since it renders it impossible to regulate the proportioning of the liquids to a sufficiently accurate extent. Furthermore, in none of such prior proposals has consideration been given to the proper location of the outlets; in all cases the outlets are spaced too far apart. The present invention provides a container having dispensing outlets that are of different sizes so as to properly proportion the admixture of liquids dispensed therefrom; are constricted so as to restrict flow sufficiently to provide for controlled flow, in selected proportions; and are disposed closely adjacent each other so as to partially mix the ingredients as they are ejected. Another characteristic of the invention is the location of the two outlets in a smooth, exposed end surface of the container neck, so that the end of the container can be tapped against the palm of the hand in the dispensing of hairdressing materials, and so that such end surface may be

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wiped off by the palm of the hand, leaving the end surface clean and avoiding any return of mixed liquids into the container or down the side of the bottle.

Another characteristic of the invention is the provision of the arrangement in which the dispensing outlets terminate in an end surface of a bottle neck, in combination with a closure cap adapted to normally seal against said end surface so as to prevent any admixture of liquids or any escape of liquids from the dispensing apertures in the event the bottle should be inverted with the cap in place.

A further object of the invention is to provide a dispensing container having the foregoing characteristics embodied in a relatively inexpensive and easily manufactured construction. In this connection, the invention contemplates a container having a one piece body portion having a central partition extending to the apertured end wall of the neck, together with a bottom having flanges to receive the lower extremities of the lateral wall and said partition respectively.

In one of its aspects, the invention provides a container having an inner and an outer chamber so arranged that the inner chamber is concealed by the liquid in the outer chamber. To this end, the inner chamber is completely encircled by a space separating it from the wall of the outer chamber.

Other objects will become apparent in the ensuing specifications and appended drawings in which:

Fig. 1 is a longitudinal sectional view of a container embodying my invention;

Fig. 2 is a plan view of the same;

Fig. 2a is a plan view of the bottom thereof;

Fig. 3 is a partial longitudinal sectional view of a container embodying a modified form of my invention;

Fig. 4 is a partial longitudinal sectional view of a container embodying another modified form of my invention;

Fig. 5 is a partial sectional view of a container embodying another modification of my invention;

Fig. 6 is a transverse sectional view through the cap of the container shown in Fig. 5, taken on the line 6-6 of Fig. 5;

Fig. 7 is a partial sectional view of a container embodying another modification of the invention;

Fig. 8 is a transverse axial sectional view through the cap of the container of Fig. 7, taken on the line 8-8 of Fig. 7;

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Fig. 9 is a longitudinal sectional view through a container embodying another modification of my invention; and

Fig. 10 is a transverse sectional view of the container of Fig. 9, taken on the line 10—10 of Fig. 9.

Incompatible liquids such as the hairdressing materials mentioned above, will often undergo chemical combination, decomposition, or precipitation when mixed together, and are most useful when applied immediately after mixing. Frequently also, such incompatible liquids when mixed together will not dispense in proper proportions.

In the dispensing container of my invention, such incompatible liquids are stored in separate chambers such as, for example, an outer chamber 11 and an inner chamber 12 of smaller volume than the chamber 11, in the container shown in Fig. 3. Such a container may be constructed to include a bottom 13, a shell or outer container wall 14, a shoulder or top wall member 15 suitably secured to the shell 14 as by means of a flange 16 embracing the upper extremity of the wall 14, and an inner container wall 17 the upper end of which is supported by and sealed to the shoulder member 15 and the lower end of which is supported by and sealed to the bottom 13. In the particular form shown in Figs. 1, 2 and 3, the shell 14 and inner wall 17 consist in cylinders of large and small diameter respectively, the cylinder 17 being disposed within the shell 14, with its axis disposed eccentric but parallel to the axis of the shell 14. It is to be understood that the container may be constructed from glass, metal or plastic material. A suitable material is one of the heat softening plastics which will permit the ends of the cylinder 17 to be bonded to the bottom 13 and shoulder member 15 respectively by applying heat to the ends so as to soften them and then pressing the parts together. To insure the proper positioning of the cylinder 17, the ends thereof may be inserted into annular grooves 18 in the bottom 13 and shoulder member 15 respectively.

Formed integrally with the shoulder member 15 is a neck 19 which may be provided with threads 20 to coact with internal threads in a closure cap 21. Discharge passages 22 and 23, communicating with the outer and inner compartments 11 and 12 respectively, are disposed in converging relation with their outlet ends located closely adjacent each other in the end wall 24 of the neck 19. The passage 22, for the aqueous liquid, is the smaller one, and the passage 23, for the oil, is the larger one, adjusted to the viscosity of the oil. The end wall 24 is convexly curved to fit the palm of the hand. The cap 21 has a sealing gasket 25 adapted to seat against the end wall 24 to seal the outlets of the passages 22, 23.

In the preferred form of the invention, shown in Figs. 1, 2 and 2a, the container is formed in two sections, namely, a bottom or base 13' and a body portion including a side wall 11', a shoulder 15', a hollow neck 19', and a partition 29' extending from the bottom through the neck and joined to the end wall 24' of the neck and to the side wall 11'. The bottom 13' has spaced annular rim flanges 31 and 32 defining an annular groove into which the side wall 11' is cemented, and a pair of spaced ribs 33 disposed immediately on opposite sides of a diameter of the bottom, to define a diametral groove into which the partition 29' is cemented. Cementing may, where

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the sections are of molded plastic material, be accomplished by softening adjoining surfaces with a solvent for the plastic. In the end wall 24', immediately adjacent the partition 29' on opposite sides thereof, are outlet apertures 22' and 23' of frusto conical shape, enlarging inwardly. The apertures terminate in outlets defined by fairly sharp edges. Cap 21' and gasket 25' are the same as in Fig. 3.

In the form of the invention shown in Fig. 4, the inner container 12a is completely supported by the shoulder member 15a, with its bottom 26 spaced from the bottom 13a of the outer shell 11a. The inner container 12a is supported by means of a threaded connection 27 with a recess 28 in the underside of the shoulder member 15a. Both outlets are closed by a single cap 21a.

In the embodiment of my invention shown in Figs. 5 and 6, the container 11b is divided into chambers of equal size by means of a partition 29. Outlets 22b and 23b of equal diameter lead to the respective chambers. Both said outlets are closed by means of a single cap 21b.

In the form shown in Figs. 7 and 8, one of the chambers 11c is much larger than the other chamber 12c, and hence I have calibrated the outlets 22c and 23c so as to deliver upon pouring a predetermined portion of said liquids in a proportion the same as the ratio between the volumes of chambers 12c and 11c respectively, so that the supply of one liquid will be exhausted at the same time as the supply of the other. A single cap 21c closes both outlets.

In the form of the invention shown in Fig. 9, outer container 11d is supported in a shell or casing 30, while inner container 12d is suspended from shoulder member 15d. Both containers may consist in test tubes or similarly shaped receptacles. In this case, the outlets 23d and 22d may comprise tubes inserted through the shoulder member 15d.

The invention contemplates particularly the dispensing of a bland oil having a proportion of lanolin therein and a number of scalp treating substances including disinfectants, alkali neutralizers, etc., suspended in an alcohol vehicle.

While in the various embodiments of this invention I have shown varying proportions of the liquids and of the chambers, it is to be understood that it is one of the objects of this invention that the proportions in each case may be changed, in which case it will only be necessary to provide pouring outlets adapted to dispense upon pouring the desired portion of the various liquids.

In each case, the relative sizes are determined in accordance with the relation between viscosities of the liquids employed and the relative proportions to be discharged.

While the particular forms of the invention herein described are well adapted to carry out the objects of the invention, it is to be understood that various modifications and changes may be made without departing from the principles of the invention, and the invention includes all such modifications and changes as come within the scope of the appended claims.

I claim:

1. In a dispenser for simultaneously dispensing two incompatible ingredients, such as a lanolin bearing oil and an aqueous liquid, of a cosmetic preparation, said ingredients to be mixed upon application to the skin; an outer shell and means defining two chambers within said shell, one to contain the oil and the other to contain

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the aqueous liquid; said dispenser having an end member terminating in an end wall of substantially uniform transverse continuity and having two outlets communicating respectively with said chambers and at their outer ends terminating in closely spaced end openings lying substantially in said end wall, whereby both end openings and said end wall may establish substantially sealing contact with the palm of the hand to avoid splashing of the liquid therefrom; said outlets being constricted so as to restrict flow to a controlled flow; and one of said outlets having an area materially greater than that of the other outlet, in a proportion such as to effect the ejection of proportional quantities of the respective liquids, with the larger outlet accommodating the more viscous lanolin bearing oil and the smaller outlet providing restricted passage for the thinner aqueous liquid; said dispenser being composed of several sections of heat softening plastic material, including a body section having a tubular lateral wall, including said end member, said end member having a flange bonded to the upper end of said lateral wall member, and including a partition constituting said chamber defining means and being bonded to said end member between said outlets at its upper end.

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2. A dispensing receptacle as defined in claim 1, including a bottom cooperating with said end member and tubular lateral wall to constitute said shell, and including an inner tubular member extending between and having its ends sealed to said end member and bottom to define an annular space constituting one of said chambers, the interior of said tubular member constituting the other of said chambers.

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