Fig.1.

(57) Abstract: A bottle (2) is provided capable of fluid communication with a device for heating a cosmetic flowable product. The bottle (2) includes a cavity (11) for storage of the product, and has on an open end a neck (10) mounted by a fitment (30). The fitment (30) includes a slitted elastic membrane (32) which extends over an open mouth (12) of the neck. Walls of the cavity define curved front (14) and rear (16) major panels.
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REFILL BOTTLE FOR APPLIANCE
DISPENSING HEATED COSMETIC FLUIDS

BACKGROUND OF THE INVENTION

The invention concerns a refill bottle for an appliance that dispenses heated cosmetic fluids, especially non-foaming skin cream or lotion.

Cold lotion applied to the skin often is not a pleasant experience. Warmed lotions provide a contrasting experience. Heat soothes. Aching muscles respond well to warmth. While cold constricts, warmth tends to open pores. The lotions can thereby penetrate deeper with positive results. The sensual experience may also be heightened at elevated temperatures.

Appliances to deliver heated shaving creams are well documented in the literature. Illustrative is US 6 056 160 (Carlucci et al.) reporting a heating mechanism applied over the nozzle of a pressurized shaving cream can. Foaming liquid is forced through the interstices of a heat exchange coil to achieve rapid temperature increase. A drawback of this system is the need for pressurized gas. Without pressurization there is no expelling force to drive shaving cream through the coiled heater.

Another approach is found in US 6 216 911 B1 (Kreitemier et al.). Instead of a disposable pressurized shaving cream can, this disclosure utilizes an integrally formed main fluid reservoir as a storage source for lotion or other dispensable fluids. Transport of the fluid to a secondary heating chamber requires a pump assembly with attendant gears and motors. This system suffers from several disadvantages. Pumps and their attendant gears/motors are subject to break down. Further, clean out of the fluid reservoir is required when changing to a different dispensed product. There may be considerable wastage when a changeover occurs with the main fluid reservoir and secondary heating chamber still storing a significant charge of the initial fluid.

These problems with known systems have been resolved by an appliance that heats cosmetic fluids in a less expensive manner through an uncomplicated fluid transport mechanism, particularly a system without an electrified pump mechanism (a motor and/or gears). Further, the appliance utilizes a main reservoir which can be readily replaceable and avoids any fluid wastage problem. Differently formulated cosmetic fluids can easily replace
one another as feed in this appliance. With the advantages noted for the new appliance, the present invention focuses upon the reservoir component and its use as a refill bottle.

SUMMARY OF THE INVENTION

A bottle is provided with the capability of fluid communication with a device for heating a cosmetic flowable product, the bottle including:

- a cavity for storage of the product, the cavity having a first and second end, the first end being closed, the second end having a neck with an open mouth, a fitment being mounted on the neck bearing a slitted elastic membrane, the slitted elastic membrane extending over the open mouth, the cavity being formed with curved front and rear major panels.

BRIEF DESCRIPTION OF THE DRAWINGS

Further advantages and features of the present invention will become more readily apparent from consideration of the drawings in which:

- Figure 1 is a perspective view of the appliance with bottle, and cross-sectional view of a heating system;
- Figure 2 is a front elevational view of the bottle;
- Figure 3 is a side elevational view of the bottle;
- Figure 4 is a top plan view of the bottle;
- Figure 5 is a top plan view of fitment with membrane for insertion into an open mouth of a neck of the bottle; and
- Figure 6 is a partial cross-sectional view of a lower area of the bottle.

DETAILED DESCRIPTION OF THE INVENTION

Now it has been found that a flexible walled easily replaceable plastics bottle can be utilized in a device for heating flowable cosmetic products. The bottle is placed above an outlet for exiting cosmetic product and functions to resolve problems of the prior art. First the bottle serves as the main reservoir for delivering cosmetic product to a heated section of the appliance. Secondly, the bottle can serve as a refill or alternative product replacement unit.
for the original bottle. There is no need for messy clean out. Product wastage is minimized. Alternative cosmetic product formulas can quickly replace the original.

Of particular distinction over earlier motorized pump appliances is the use of a squeeze bottle according to the present invention. This allows ready evacuation of product retained anywhere in the flow path of the appliance. Manual pressure on the bottle wall forces air down the length of the delivery system. By contrast, a pump cannot achieve full evacuation.

Figure 1 illustrates the plastics bottle (2) of this invention situated in operative mode above a base (4) of a device (6) for heating/dispensing cosmetic products.

Figures 2 and 3 illustrate views of the plastics bottle (2) but without closures. These bottles can be formed from polyolefin (polypropylene or polyethylene) or polyester (polyethyleneterephthalate) resins through an injection or extrusion blow moulding process. Particularly preferred is polyethylene terephthalate because this resin provides a rapid panel return (suck back) and prevents lingering panel collapse.

The bottle has a closed end (8) and an opposite end featuring a neck (10) with an open mouth (12). Cavity (11) within the plastic bottle stores the cosmetic flowable product (e.g. lotion, cream, shampoo, shower gel, shaving cream, etc).

Featured on the bottle is a front major panel (14) and a rear major panel (16), each separated by lateral seams (18) asymmetrically separating front and rear major panels.

The seams traverse the bottle from the closed end to a shoulder (20) near the neck (10) in a non-linear curved manner. In a preferred embodiment, areas on the front major panel (14) are shaped to have a more rigid wall than areas on the rear major panel (16). This allows for squeezability to force cosmetic flowable product downward into a receiving tube within the base of the appliance. Differences in squeezability between front (14) and rear (16) major panels can be achieved in at least two ways. The first is through differences in thickness in the extruded walls of the plastics bottle. Secondly, flexibility differences can simply be obtained through a differential radial shape.
Figure 4 is a top plan view of the bottle (2) looking downward to the closed end (8). This view shows the symmetric configuration along a major axis A and an asymmetric configuration along minor axis B, these axii being taken along a length of the bottle.

The asymmetrical configuration and transitional radius of the rear major panel (16) intuitively directs a user's hand to naturally select the rear panel for palm embracement. This improves ease of dispensing because squeeze pressure is now directed against the transitional radius area (24). This area functions as a hinge allowing the rear panel to partially collapse. Through the asymmetric arrangement and transitional panel radii, a strong squeeze response and fast panel return is achieved between doses. Coupling into proper orientation of the bottle neck into a docking area (26) at a top of the base (4) is facilitated through the asymmetric character of neck (10) and shoulder (20).

A fitment (30) is secured over the neck (10) and features an elastic membrane (32). Suitable materials of construction for the elastic membrane (32) are elastomers, particularly a silicone elastomer. A plurality of slits (34) are cut near a center area of the elastic membrane (32) to facilitate a forced coupling into the docking area (26). Figure 5 best illustrates the multi-slitted flexible membrane (32).

Fitment (30) further includes a circumferentially outward projecting ridge (36) featuring three equidistant semi-circular elongated apertures (38). These apertures and related detents lockingly connect with the neck of the bottle.

Plastics bottle (2) is easily joined to the base (4) by placement of fitment (30) directly into the docking area (26). A projection tube from within the base and the elastic membrane (32) are aligned. Downward pressure assisted by a twisting motion forces the projection tube to part slits (34) of the elastic membrane (32) and penetrate into the bottle cavity (11).

A user activates dispensing by wrapping one hand around the bottle (2) and applying squeeze pressure thereto. Squeezing restricts the bottle internal volume forcing the cosmetic product to flow downward into a coiled tube. In a fully charged system, the squeeze pressure forces a proportionate amount of cosmetic product to be dispensed from an outlet (at the end of the coiled tube). Any vacuum created in the plastic bottle by the dispensing operation is countered by atmospheric air entering a pressure equalization valve.
Figure 6 illustrates in cross-sectional and partial view a lower area of the plastics bottle. The neck (10) of the bottle is covered by a service cap (40). This cap permits shipment and avoidance of dust from entering through the elastic membrane (32) and neck (10). Just prior to use, the service cap (40) is removed rendering the plastics bottle ready for placement atop the base (4) of the device.
CLAIMS

1. A bottle (2) capable of fluid communication with a device for heating a cosmetic flowable product comprising:
   a cavity (11) for storage of the product, the cavity (11) having a first and second end, the first end being closed (8), the second end having a neck (10) with an open mouth (12), a fitment (30) being mounted on the neck (10) bearing a slitted elastic membrane (32), the slitted elastic membrane (32) extending over the open mouth (12), the cavity (11) being formed with curved front (14) and rear (16) major panels.

2. The bottle (2) according to claim 1 wherein the bottle has a front (14) and rear (16) major panel asymmetrically separated by a seam traversing a majority of a length of the bottle.

3. The bottle (2) according to claim 1 and claim 2 further comprising a shoulder (20) surrounding the neck.

4. The bottle (2) according to claim 3 wherein a major axis defines a plane symmetrically bisecting the neck (10) and shoulder (20) and a minor axis defines a further plane asymmetrically bisecting the neck (10) and shoulder (20).

5. The bottle (2) according to any one of the preceding claims wherein a seam separates the front (14) and rear (16) major panels, the seam longitudinally extending curvedly from the closed end (8) toward a shoulder (20) adjacent the neck.

6. The bottle (2) according to any one of the preceding claims wherein areas (24) of the rear major panel (16) have greater flexibility than the front major panel (14).
# INTERNATIONAL SEARCH REPORT

**A. CLASSIFICATION OF SUBJECT MATTER**

INV. A45D34/00 B65D47/20

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

B65D A45D H05B A47K B05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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[X] Further documents are listed in the continuation of Box C.  
[X] See patent family annex.

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  "O" document referring to an oral disclosure, use, exhibition or other means
  
  "P" document published prior to the international filing date but later than the priority date claimed

**Date of the actual completion of the international search**

10 December 2008

**Date of mailing of the international search report**

23/12/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016

Authorized officer

Koob, Michael

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