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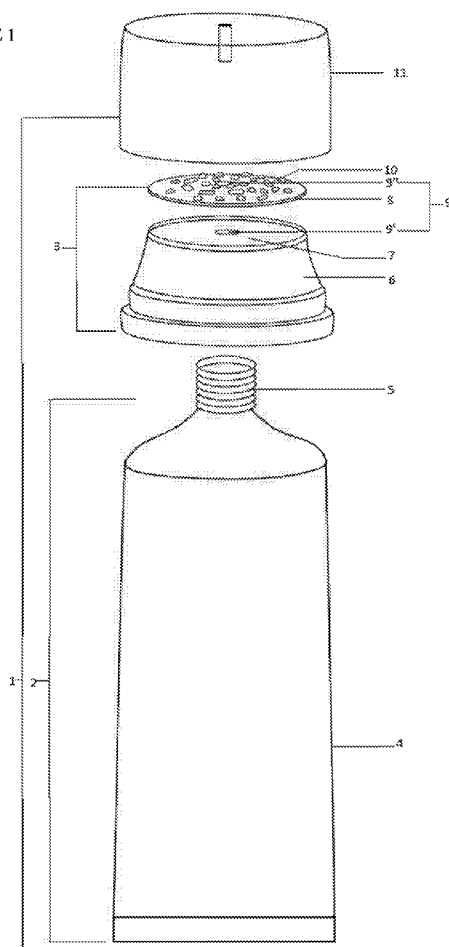
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(54) Title: TOPICAL APPLICATOR

FIGURE 1



(57) Abstract: The present invention relates to a topical ap-
plicator (1) comprising (i) a tube (2) containing a semi-solid
dosage form; and (ii) a massaging assembly (3).



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TOPICAL APPLICATOR

Field of the Invention

The present invention relates to a topical applicator comprising (i) a tube containing a semi-solid dosage form; and (ii) a massaging assembly.

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Background of the Invention

A large variety of topical pain relievers in the form of semi-solid dosage forms such as creams, gels, and ointments are used for the treatment of muscle aches and pain. These pain relievers must penetrate the skin adequately and deliver the active ingredient to the point of pain or discomfort in order to have a substantial effect. This requires that
10 these dosage forms be dispensed from pack tubes and applied by hand to the affected area by gently rubbing the dosage form onto the skin. However, this process of massaging with a hand has several disadvantages, for example, the increased risk of accidental contact of the ingredients present in the pain relieving dosage forms with the eyes resulting in pain and irritation. Therefore, most of these pack tubes carry instructions for
15 washing hands and not rubbing the eyes after use. Further, hand application makes the process messy for patients and increases the risk of cross contamination.

U.S. Patent No. 4,309,989 teaches a method for the treatment of skin conditions by applying a semi-solid dosage form onto the affected area and massaging with an ultrasonic applicator which helps the medication penetrate into the skin.

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However, the technique in the prior art is complex, leading to poor patient compliance. Therefore, there is a need in the art to develop a topical applicator with a massaging assembly which not only overcomes the disadvantages of hand application but and results in improved patient compliance, ease of use, and improved shelf appeal.

The present invention is directed to a topical applicator containing a tube and a
25 massaging assembly. The topical applicator can be conveniently used by patients for spreading the medicament directly to the affected area as well as for massaging the medicament onto the skin.

Summary of the Invention

A first aspect of the present invention provides a topical applicator comprising (i) a
30 tube containing a semi-solid dosage form; and (ii) a massaging assembly.

According to one embodiment of this aspect, the tube comprises a tube body and a neck region wherein the neck region comprises a threaded or a snapping section by which the massaging assembly is screwed or snap-sealed to the neck region.

According to another embodiment of this aspect, the massaging assembly
5 comprises an applicator base and a massaging top wherein the upper surface of the applicator base comprises one or more dispensing holes and the massaging top comprises a plurality of massaging nubs and one or more dispensing holes.

According to another embodiment of this aspect, the massaging top is seal fitted onto the upper surface of the applicator base such that the one or more dispensing holes of
10 the massaging top coincide with the one or more dispensing holes of the upper surface of the applicator base to form a dispensing opening.

According to another embodiment of this aspect, the topical applicator further comprises a cap wherein the cap comprises a sealing pin such that when the cap is fitted to the applicator base the sealing pin seals the dispensing opening, thus maintaining the semi-
15 solid dosage form in the tube body during storage.

According to yet another embodiment of this aspect, the semi-solid dosage form comprises pain relieving/analgesic agents or local anesthetic agents.

Brief Description of the Drawing

The accompanying drawings show one of the various possible exemplary
20 embodiments of the invention.

Figure 1 depicts the exploded view of the topical applicator comprising a tube and a massaging assembly and its components having all markings thereon.

Figure 2 depicts the side view of the massaging assembly and its components having all markings thereon.

25 Figure 3 depicts the topical applicator covered with a cap having all markings thereon.

Detailed Description of the Invention

Referring to Figure 1, the topical applicator 1 comprises a tube 2 and a massaging assembly 3. The tube 2 comprises a tube body 4 and a neck region 5. The neck region 5
30 comprises a threaded or a snapping section by which the massaging assembly 3 is screwed

or snap-sealed to the neck region 5.

Referring to Figure 1 and Figure 2, the massaging assembly 3 comprises an applicator base 6 and a massaging top 8. The upper surface 7 of the applicator base 6 comprises one or more dispensing holes 9'. The massaging top 8 comprises a plurality of massaging nubs 10 and one or more dispensing holes 9". The massaging top 8 is seal-fitted onto the upper surface 7 of the applicator base 6 such that one or more dispensing holes 9" of the massaging top 8 coincide with one or more dispensing holes 9' of the upper surface 7 of the applicator base 6 to form the dispensing opening 9.

Referring to Figure 1 and Figure 3, the topical applicator 1 may further be covered with a cap 11 wherein the cap 11 comprises a sealing pin 13 so that when the cap 11 is fitted to the applicator base 6, the sealing pin 13 seals the dispensing opening 9, thus maintaining the semi-solid dosage form in the tube body 4 during storage.

Referring to Figure 1 and Figure 2, while dispensing the semi-solid dosage form, the user presses the tube body 4 such that the dosage form is dispensed through the dispensing opening 9 onto the affected area. When a sufficient amount of the semi-solid dosage form is dispensed, the user places the massaging assembly 3 onto the affected area such that the massaging nubs 10 are resting on the skin surface. The user may then apply rotational, stroking, tapping, pressings or oscillating motions of the massaging nubs 10 against the skin to have a massaging effect.

The term "semi-solid dosage form", as used herein, may be in the form of ointment, cream, gel, lotion, paste, suspension, or dispersion. The active ingredient in the semi-solid dosage form may include pain relieving/analgesic agents or local anesthetic agents.

The topical applicator according to the present invention may be formed from any material that is flexible and inelastic. The preferred material to form the tube body 4 includes, but is not limited to, polypropylene (PP), high-density polyethylene (HDPE), or co-extruded polyethylene and ethylene vinyl alcohol (EVOH). The preferred material to form the massaging top 8 includes, but is not limited to, natural rubber, styrenic block copolymer (*e.g.*, Synprene[®]), or liquid silicone rubber (LSR).

The topical applicator may optionally be printed with logos identifying the product and/or pasted with holographic stickers and/or with instructions in the form of written texts and/or graphics as "directions for use."

We claim:

- 1 1. A topical applicator comprising (i) a tube containing a semi-solid dosage form; and
2 (ii) a massaging assembly.
- 1 2. The topical applicator according to claim 1, wherein the tube comprises a tube
2 body and a neck region.
- 1 3. The topical applicator according to claim 1, wherein the massaging assembly
2 comprises an applicator base and a massaging top.
- 1 4. The topical applicator according to claim 2, wherein the neck region comprises a
2 threaded or snapping section by which the massaging assembly is screwed or snap-
3 sealed to the neck region.
- 1 5. The topical applicator according to claim 3, wherein the upper surface of the
2 applicator base comprises one or more dispensing holes.
- 1 6. The topical applicator according to claim 3, wherein the massaging top comprises a
2 plurality of massaging nubs and one or more dispensing holes.
- 1 7. The topical applicator according to claim 5 or 6, wherein the massaging top is seal
2 fitted onto an upper surface of the applicator base such that the one or more
3 dispensing holes of the massaging top coincide with the one or more dispensing
4 holes of the upper surface of the applicator base to form a dispensing opening.
- 1 8. The topical applicator according to claim 1, wherein the topical applicator further
2 comprises a cap.
- 1 9. The topical applicator according to claim 8, wherein the cap comprises a sealing
2 pin such that when the cap is fitted to the applicator base, the sealing pin seals the
3 dispensing opening.
- 1 10. The topical applicator according to claim 1, wherein the semi-solid dosage form
2 comprises pain relieving/analgesic agents or local anesthetic agents.

FIGURE 1

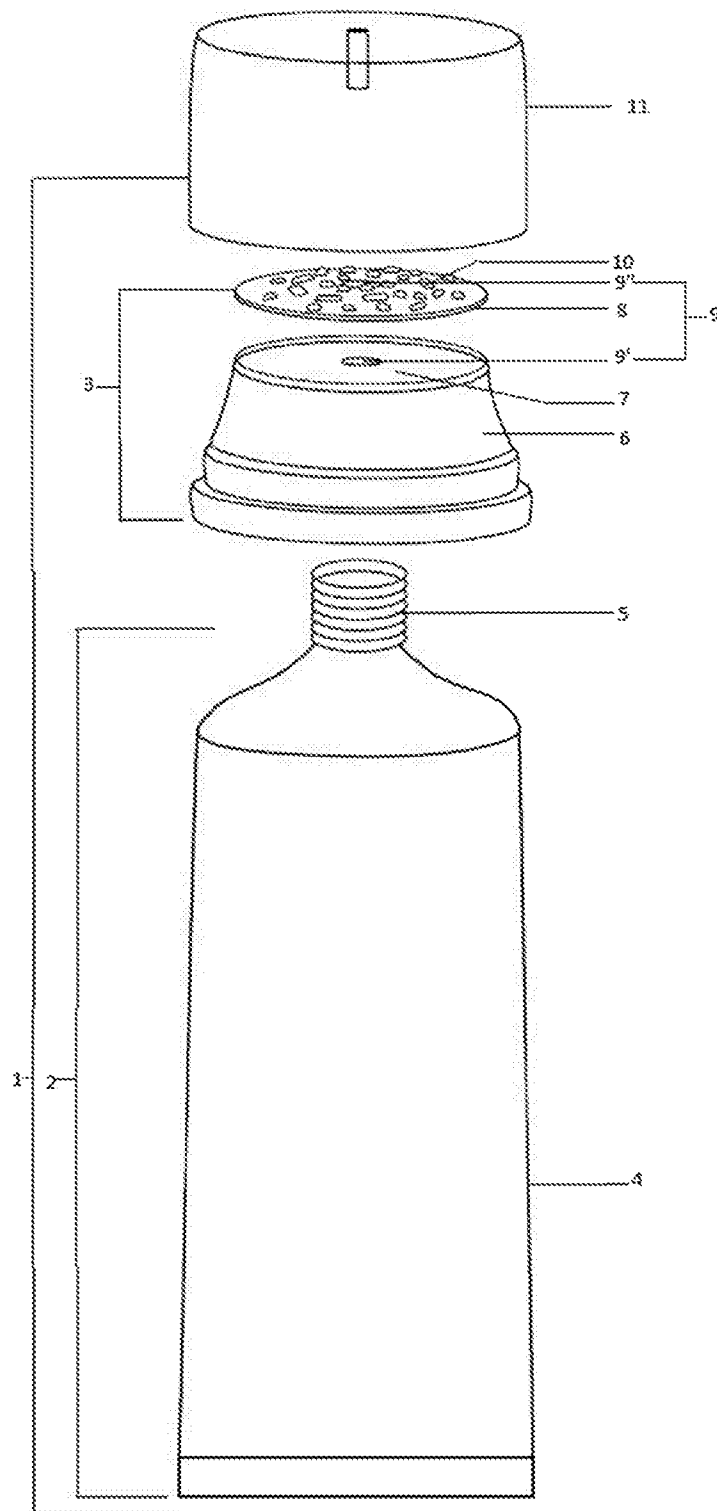


FIGURE 2

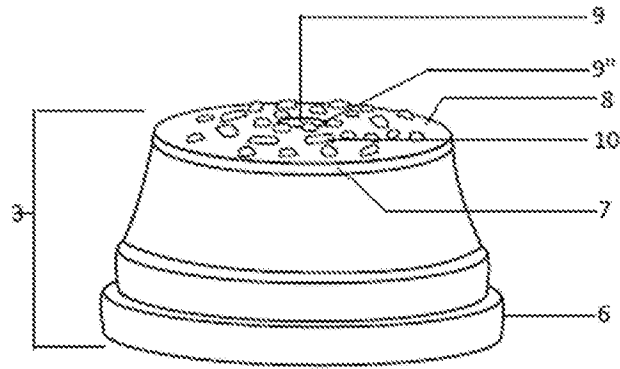
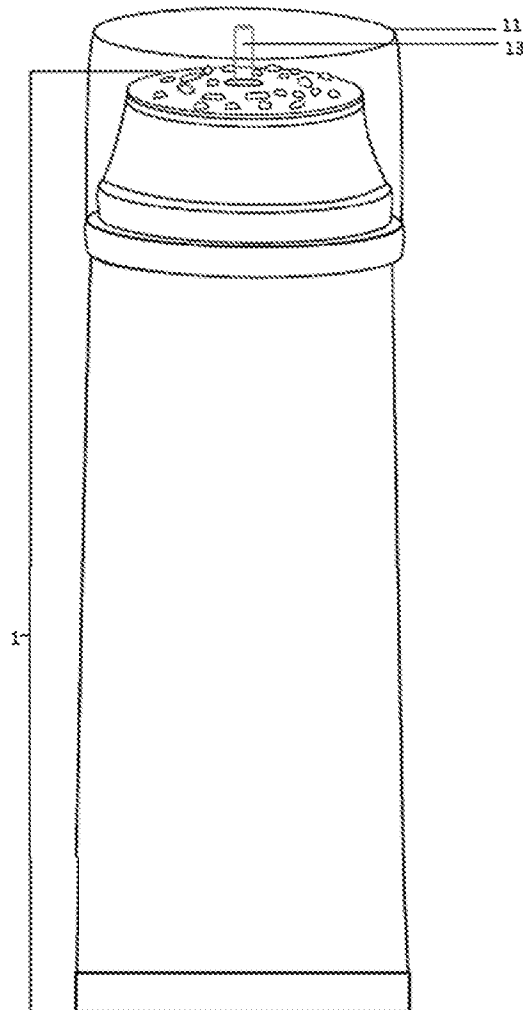


FIGURE 3



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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ADD.

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61M A61H

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 practicable, search terms used)

EPO-Internal, WPI Data

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X	WO 2012/156740 A1 (LEO PHARMA AS [DK]; WILCOX ALUN [GB]; SPRADA PETER [GB]; CROOK ALEXAND) 22 November 2012 (2012-11-22) page 8, line 16 - page 10, line 30 abstract; figure 1a page 16, lines 25-37; figures 11-12 ----- -/--	1-8,10



Further documents are listed in the continuation of Box C.



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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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