US 20140153996A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2014/0153996 A1**

(43) **Pub. Date: Jun. 5, 2014**

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(54) **LOTION APPLICATION DEVICE**

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(21) Appl. No.: **13/691,419**

(22) Filed: **Nov. 30, 2012**

Publication Classification

(51) **Int. Cl.**
A45D 40/26 (2006.01)

(52) **U.S. Cl.**
CPC ***A45D 40/261*** (2013.01)
USPC **401/219**

(57) **ABSTRACT**

A lotion applicator includes a body including a holding tank adapted to store a quantity of lotion; a roller applicator at one end of the body; a pump mechanism adapted to pump lotion from the holding tank to the roller applicator; a manifold adjacent to the roller applicator adapted to coat the roller applicator with the lotion pumped from the holding tank; and a cover moveable between a first position in which it seals the roller applicator, thereby also sealing the holding tank, and a second position in which it uncovers the roller applicator for use.

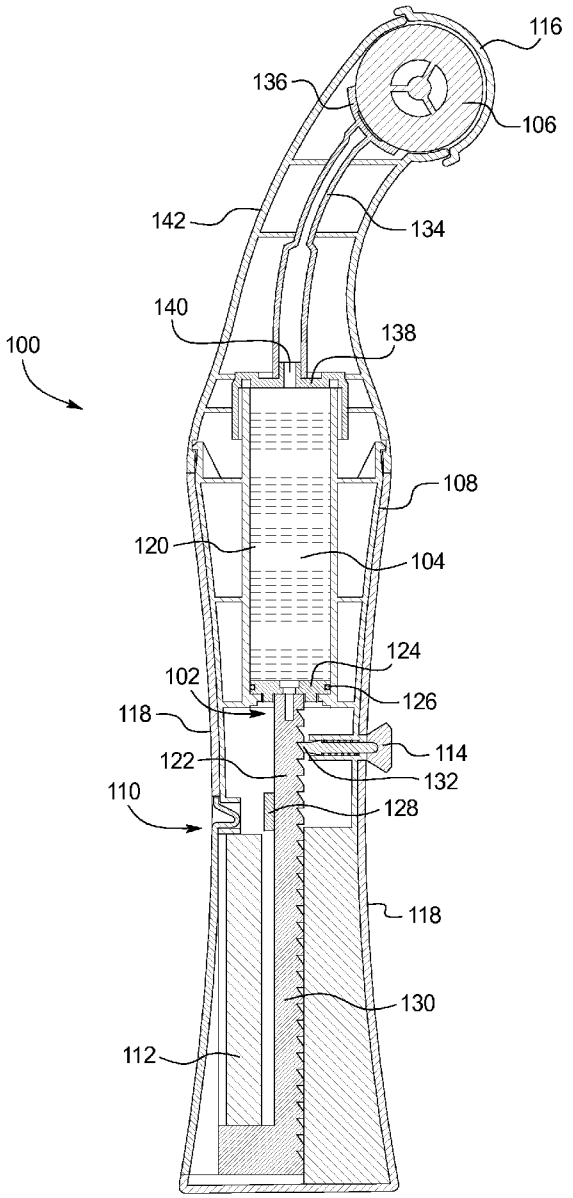

FIG. 1

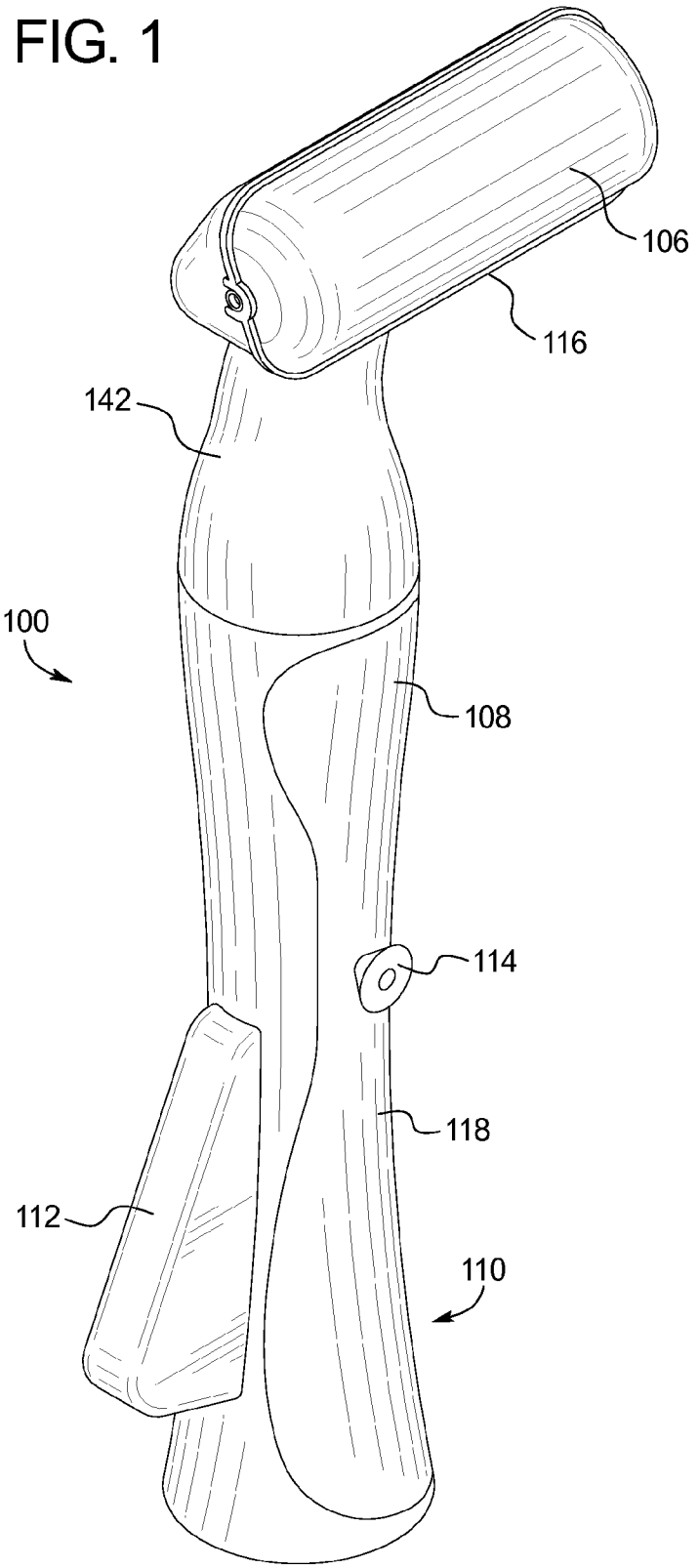

FIG. 2

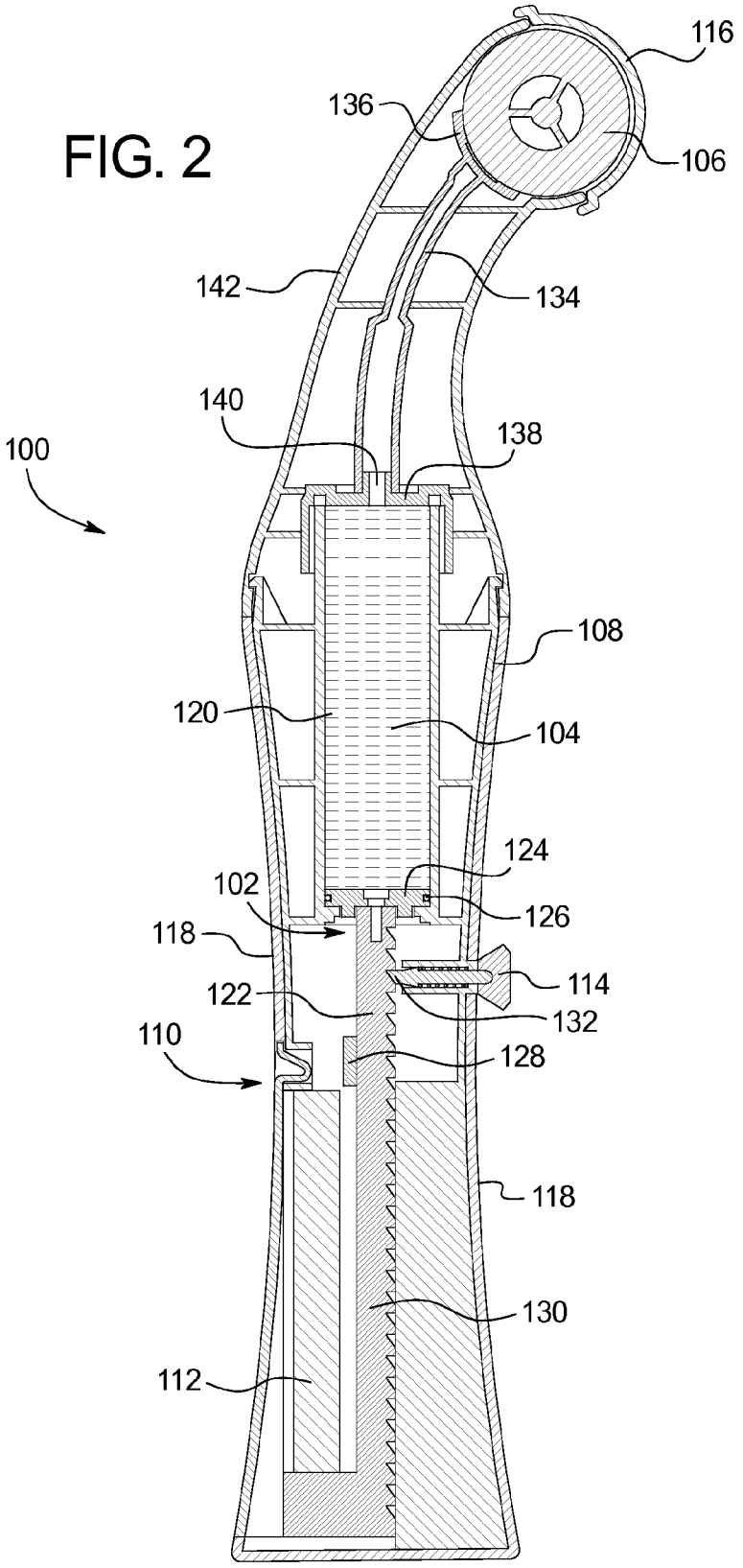
116
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FIG. 3A

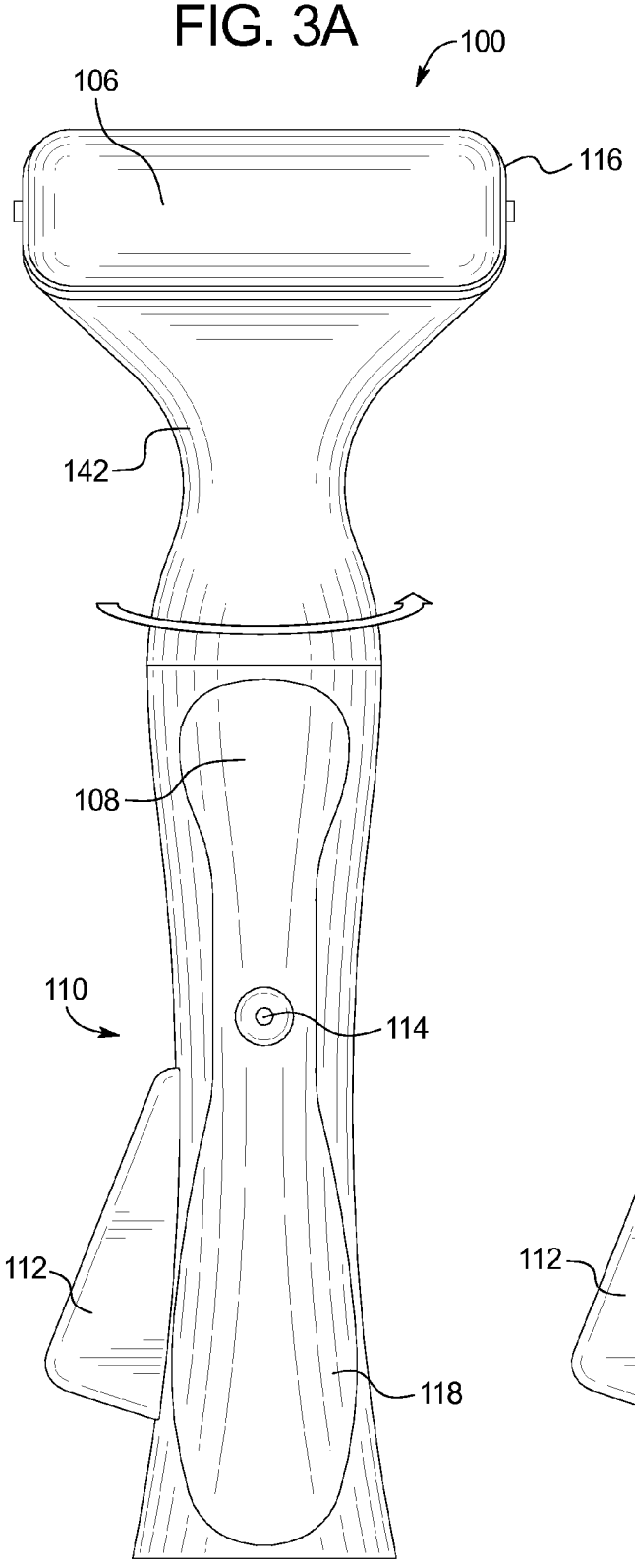


FIG. 3B

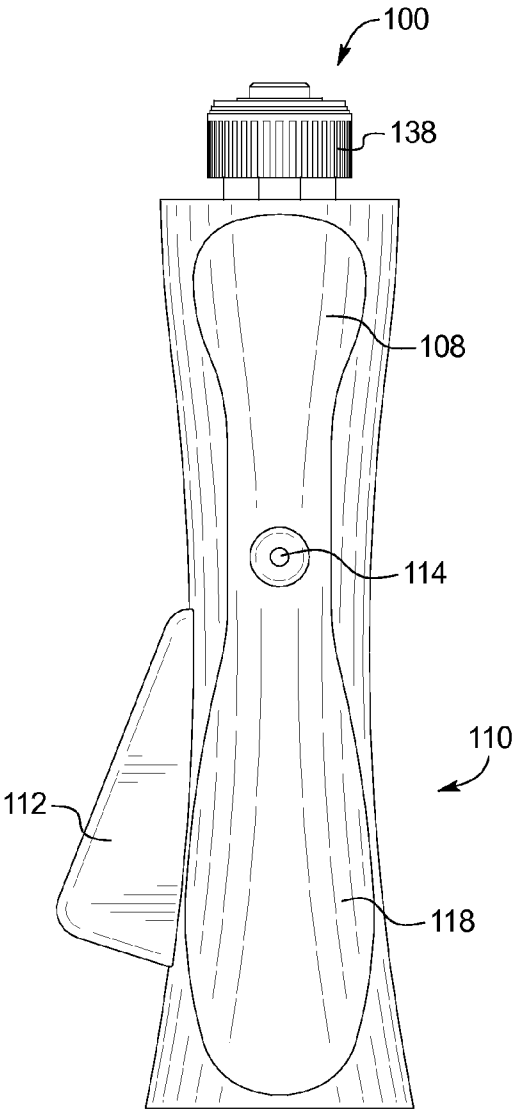
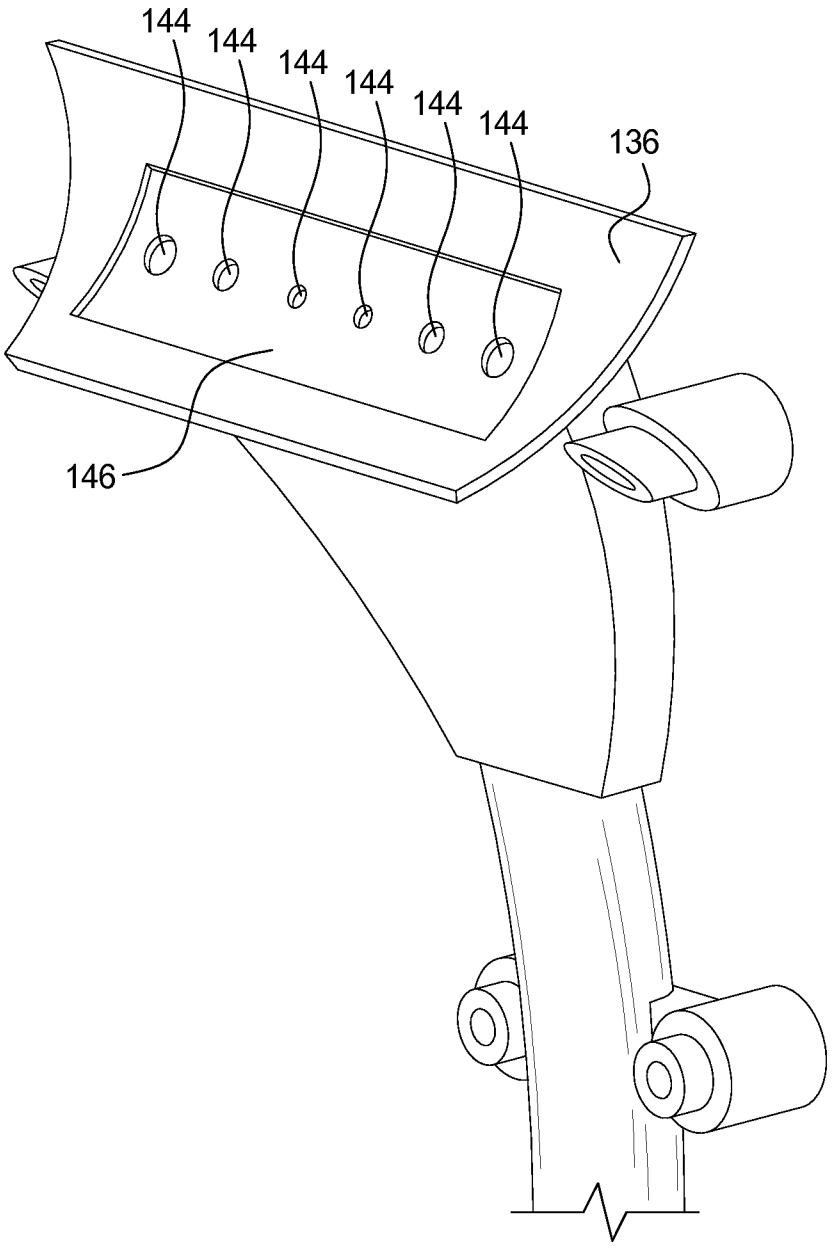


FIG. 4



LOTION APPLICATION DEVICE

BACKGROUND OF THE INVENTION

[0001] The present subject matter relates generally to a lotion application device. Particularly, the present subject matter relates to a pump-driven device including a roller applicator that extends a user's reach to efficiently apply lotion to the user's or another person's body.

[0002] People use various types of lotions and materials of similar consistency for numerous purposes. From moisturizing lotions, to sunscreens, to self-tanners, to sanitizing gels, to medications, etc. there is a very large range of materials with lotion-like consistencies that people may apply in various circumstances.

[0003] There are numerous situations in which the application of lotion would optimally be assisted by an application device. Such a device could potentially keep a user's hands clean, assist in applying lotion to hard to reach places, and help ensure a consistent application. However, previously existing lotion applicators fell short of these goals.

[0004] Accordingly, there is a need for a lotion applicator that is adapted to efficiently and effectively apply lotion, as described and claimed herein.

BRIEF SUMMARY OF THE INVENTION

[0005] The present disclosure provides a lotion applicator adapted to efficiently and effectively apply lotion, as well as function as a storage device for the lotion. In particular, the lotion applicator provided herein is adapted to dispense lotion onto the body easily and evenly, with a controlled rate of flow with a mess free, clean hands process.

[0006] The lotion applicator provided herein includes a pump mechanism for delivering lotion to a roller applicator. A body provides an elongated structure that enables the user to extend his or her reach to make the application process easier. The body may include, for example, a handle, a trigger, a locking mechanism, and a cover.

[0007] The handle may include ergonomically shaped soft rubber grips to provide a no-slip grip that is soft to the touch.

[0008] The trigger is the mechanism through which a user distributes the lotion from the pump mechanism to the roller applicator. Using the trigger, the user controls the rate of the flow of the lotion to the roller applicator. In one embodiment, the trigger controls the operation of a spring-loaded, ratcheting pump mechanism that delivers the lotion to the roller applicator.

[0009] In one example of a pump mechanism that may be adapted to feed lotion to a roller applicator, the pump mechanism includes a holding tank, a ratcheting piston, and a spring-loaded locking mechanism. The holding tank may be, for example, a cylindrical holding tank adapted to hold approximately 2.5 oz. of lotion, or roughly the amount of lotion required to complete at least two full body applications. The holding tank may be filled from the top and sealed along the bottom by a piston disk and gasket.

[0010] When a user depresses the trigger, the piston disk advances forward into the holding tank to pressurize the lotion stored therein. The trigger turns a gear to advance a toothed arm that drives the piston disk. The spring-loaded locking mechanism includes a pawl to prevent backlash movement of the toothed arm. Accordingly, the trigger advances the piston disk in one direction only. However, a user can release the pawl from the toothed arm by pulling the spring-loaded locking mechanism away from the handle. When the spring-loaded locking mechanism is released, the piston disk may travel backwards within the holding tank, to enable a refill or otherwise reduce the pressure in the holding tank.

[0011] At the top of the holding tank a supply tube directs the flow of the lotion to a uniquely designed manifold that distributes the lotion onto the roller applicator. The supply tube is positioned into fluid-tight communication with the holding tank through a holding tank cap. The holding tank cap includes a central bore and screws onto the threaded top of the holding tank. A head unit of the lotion applicator unscrews from the handle to provide access to the holding tank cap, which itself may be removed for filling the holding tank.

[0012] In one example, the head unit unscrews counterclockwise from the handle and can be removed to provide access to the holding tank cap. A user may remove the holding tank cap to fill the holding tank. While the lotion applicator is in an upright position and the holding tank cap has been removed, the user may release the spring-loaded locking mechanism and push the piston disk back towards the bottom of the lotion applicator. The user may then fill the holding tank with the lotion of choice, screw the holding tank cap back into place and then reassemble the head unit onto the handle.

[0013] A unique manifold is disclosed herein. The manifold is adapted to evenly dispense the lotion along the length of the roller applicator. As the lotion is pressure driven through the supply tube, it directed to a series of outlets. Each outlet is sized appropriately to maintain an even flow of the lotion across the width of the manifold. In a preferred embodiment, there is a plurality of outlets distributed even distances across the width of the manifold, which substantially spans the width of the roller applicator. The outlets most centrally located are the narrowest in diameter and those most peripherally located are the largest in diameter. The variation in outlet diameter varies the pressure at each outlet and provides a more consistent coating of lotion across the width of the roller assembly. In addition, a distribution channel is provided along the face of the manifold surrounding the outlets, which also assists in evenly distributing the flow of the lotion across the roller applicator. In a preferred embodiment, the distribution channel is a shallowly recessed rectangular channel that allows the lotion to spread out within the distribution channel to be more evenly spread across the roller applicator.

[0014] In a preferred embodiment, the roller applicator is a four-inch wide, dense foam with a felt outer layer that provides a soft, gentle application. It is understood, however, that the roller applicator may be provided in various shapes, sizes, and materials to accomplish the advantages described herein. Further, in a preferred embodiment, the roller applicator is removable for cleaning and/or replacement and, when held in place, the roller applicator is secured within the head unit directly against the manifold, which assists in keeping the dispensing of the lotion clog-free and even.

[0015] A removable cover protects the roller applicator. The cover may be, for example, a clear plastic protector that rotates away from the roller applicator to uncover the roller applicator for use and then rotates back into position to seal the head unit when it is not in use, for example, when it is to be stored or transported.

[0016] The head unit may be reversible to adapt the lotion applicator for either left or right hand use. The head unit may

be reversed by removing it from the handle and reconnecting it after it has been rotated 180 degrees.

[0017] In one example, a lotion applicator includes: a holding tank adapted to store a quantity of viscous material; a body within which the holding tank is located, wherein the body includes a proximal end and a distal end, wherein the body further includes a handle located closer to the proximal end than the distal end; a trigger located on the body such that a user can activate the trigger while grasping the handle; a roller applicator located adjacent to the distal end of the body; a pump mechanism activated by the trigger to pump any viscous material stored in the holding tank from the tank; a manifold for receiving any viscous material pumped from the holding tank and distributing any viscous material pumped from the holding tank onto the roller applicator; and a cover movable between a first position in which it seals the roller applicator and a second position in which the roller applicator is exposed.

[0018] In some embodiments, the manifold includes a plurality of outlets that vary in diameter with respect to each other. For example, the manifold may include six evenly spaced outlets, including an inner pair of outlets, a middle pair of outlets, and an outer pair of outlets, wherein the inner pair of outlets is the smallest and the outer pair of outlets is the largest. The manifold may further include a distribution channel surrounding the outlets.

[0019] In some examples, squeezing the trigger towards the handle may activate the trigger. Also, in some example, the roller applicator is a foam roller, for example a cylindrical shaped roller applicator.

[0020] The pump mechanism may include a piston disk that pressurizes any viscous material stored in the holding tank when advanced into the holding tank by the trigger. The trigger may advance the piston disk using a ratcheting mechanism. The piston disk may be prevented from backing out of the holding tank by a spring-loaded locking mechanism.

[0021] In another example, a lotion applicator includes: a body including a holding tank adapted to store a quantity of lotion; a roller applicator at one end of the body; a pump mechanism adapted to pump lotion from the holding tank to the roller applicator; a manifold adjacent to the roller applicator adapted to coat the roller applicator with the lotion pumped from the holding tank; and a cover moveable between a first position in which it seals the roller applicator, thereby also sealing the holding tank, and a second position in which it uncovers the roller applicator for use.

[0022] In some embodiments, the body includes a trigger that activates the pump mechanism. For example, squeezing trigger may activate the pump mechanism.

[0023] There are numerous manifolds that may be employed in the lotion applicator. In one version, the manifold is approximately the same width of the roller applicator. Further, the manifold includes a series of outlets across its width. The series of outlets may be evenly spaced across the width of the manifold with the outlets further from center of the manifold being larger in diameter than the outlets closer to the center of the manifold. This configuration assists in delivering a consistent amount of lotion across the width of the roller applicator. The manifold may further include a distribution channel surrounding the outlets, which further assists in delivering a consistent amount of lotion across the width of the roller.

[0024] In some embodiments, the pump mechanism includes a spring-loaded locking mechanism through which a user may reset the association between the pump mechanism and the holding tank. For example, releasing the spring-loaded locking mechanism may enable a user to refill the holding tank with lotion and return the pump mechanism to a starting configuration.

[0025] An advantage of the lotion applicator provided herein is that it applies and stores lotion.

[0026] Another advantage of the lotion applicator provided herein is that it holds enough lotion for several whole body applications.

[0027] A further advantage of the lotion applicator provided herein is that it extends the user's reach to address difficult to reach spots.

[0028] Yet another advantage of the lotion applicator provided herein is that it adjusts for right handed or left handed use.

[0029] Another advantage of the lotion applicator provided herein is that it is pump driven to control the flow of the lotion.

[0030] Still another advantage of the lotion applicator provided herein is that the roller delivers the lotion to the skin with no waste and no mess.

[0031] Another advantage of the lotion applicator provided herein is that it provides wide coverage helps avoid streaks in application.

[0032] A further advantage of the lotion applicator provided herein is that the replaceable roller is easy to clean and replace.

[0033] Another advantage of the lotion applicator provided herein is that the roller seals between uses for mess free storage and travel and to prevent the roller from drying out and the lotion from going bad.

[0034] Additional objects, advantages and novel features of the examples will be set forth in part in the description which follows, and in part will become apparent to those skilled in the art upon examination of the following description and the accompanying drawings or may be learned by production or operation of the examples. The objects and advantages of the concepts may be realized and attained by means of the methodologies, instrumentalities and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0035] The drawing figures depict one or more implementations in accord with the present concepts, by way of example only, not by way of limitations. In the figures, like reference numerals refer to the same or similar elements.

[0036] FIG. **1** is a perspective view of a lotion applicator.

[0037] FIG. **2** is a cross-sectional side view of the lotion applicator shown in FIG. **1**.

[0038] FIGS. **3***a* and **3***b* illustrate the lotion applicator shown in FIG. **1** with the head unit in place in FIG. **3***a* and the head unit removed in FIG. **3***b*.

[0039] FIG. **4** is a perspective view of a manifold used in the lotion applicator shown in FIG. **1**.

DETAILED DESCRIPTION OF THE INVENTION

[0040] FIG. **1** illustrates an example of a lotion applicator **100**. As shown in FIG. **1** the lotion applicator **100** includes a pump mechanism **102** that feeds lotion **104** to a roller applicator **106**. In the example shown in FIG. **1**, the body **108** of the applicator provides an elongated structure that enables the user to extend his or her reach to make the application process

easier. As further shown, the lotion applicator **100** includes a handle **110**, a trigger **112**, a locking mechanism **114**, and a cover **116**.

[0041] While the examples provided herein focus on the application of a lotion **104** such as a sunscreen, it is understood that the term lotion **104**, as used herein, includes any lotion, oil, gel, or other substance with a consistency similar to a lotion.

[0042] Returning to FIG. **1**, the embodiment of the handle **110** shown includes ergonomically shaped grips **118** that may, for example, be made of a soft rubber that provides a no-slip grip and is soft to the touch. However, it is contemplated that there are numerous variations of the handle **110** and grips **118** that may be used to accomplish the advantages of the lotion applicator **100** provided herein.

[0043] The trigger **112** shown in FIG. **1** is the mechanism through which a user distributes the lotion from the pump mechanism **102** to the roller applicator **106**. As described further herein, the user controls the rate of the flow of the lotion **104** to the roller applicator **106** using the trigger **112**. In an exemplary embodiment, the trigger **112** controls the operation of a spring-loaded, ratcheting pump mechanism **102**.

[0044] Turning now to FIG. **2**, a cross-sectional side view of the lotion applicator **100** shown in FIG. **1** illustrates an example of a pump mechanism **102** that feeds lotion **104** to a roller applicator **106**. As shown, the pump mechanism **102** includes a holding tank **120**, a ratcheting piston **122**, and a spring-loaded locking mechanism **114**. While it is understood that variations of the pump mechanism **102** may be employed, the example provided in FIG. **2** is the presently preferred embodiment.

[0045] The holding tank **120** shown in FIG. **2** is a cylindrical holding tank **120** adapted to hold approximately 2.5 oz. of lotion **104**, or roughly the amount of lotion **104** required to complete at least two full body applications of the lotion **104**. The holding tank **120** fills from the top and is sealed along the bottom by a piston disk **124** and gasket **126**. The gasket **126** shown in FIG. **2** is a rubber O-ring gasket **126** that seals the space between the piston disk **124** and the wall of the holding tank **120** as the ratcheting piston **122** travels within the holding tank **120**.

[0046] As shown, when the trigger **112** is depressed, the piston disk **124** advances forward into the holding tank **120** to pressurize the lotion **104** stored therein. The trigger **112** turns a gear **128** to advance a toothed arm **130** that drives the piston disk **124**. The spring-loaded locking mechanism **114** includes a pawl **132** to prevent backlash movement of the toothed arm **130**. Accordingly, the trigger **112** advances the piston disk **124** in one direction only. However, a user can release the pawl **132** from the toothed arm **130** by pulling the spring-loaded locking mechanism **114** away from the handle **110**. When the spring-loaded locking mechanism **114** is released, the piston disk **124** may travel backwards within the holding tank **120**, to enable a refill or otherwise reduce the pressure in the holding tank **120**.

[0047] At the top of the holding tank **120** a supply tube **134** directs the flow of the lotion **104** to a manifold **136** that distributes the lotion **104** onto the roller applicator **106**. The supply tube **134** is positioned into fluid-tight communication with the holding tank **120** through a holding tank cap **138**. The holding tank cap **138** shown in FIG. **2** includes a central bore **140** and screws onto the threaded top of the holding tank **120**. A head unit **142** of the lotion applicator **100** unscrews from the handle **110** to reveal the holding tank cap **138**, which may be removed for filling the holding tank **120**.

[0048] For example, in the embodiment shown in FIGS. **3***a* and **3***b*, the head unit **142** unscrews counter-clockwise from the handle **110** and can be removed to provide access to the holding tank cap **138**. A user may remove the holding tank cap **138** to fill the holding tank **120**. For example, in the embodiment shown, a user may remove the head unit **142** by turning it counter-clockwise one half turn. The user may then remove the holding tank cap **138** by unscrewing it from the holding tank **120**. Then, while the lotion applicator **100** is in an upright position, the user may release the spring-loaded locking mechanism **114** and push the piston disk **124** back towards the bottom of the lotion applicator **100**. The user may then fill the holding tank **120** with the lotion **104** of choice, screw the holding tank cap **138** back into place and then reassemble the head unit **142** onto the handle **110**.

[0049] Turning now to FIG. **4**, an example of a manifold **136** is shown. The manifold **136** shown in FIG. **4** is adapted to evenly dispense the lotion **104** along the length of the roller applicator **106**. As the lotion **104** is pressure driven through the supply tube **134**, it directed to a series of six outlets **144**. Each outlet **144** is sized appropriately to maintain an even flow of the lotion **104** across the width of the manifold **136**. In addition, a distribution channel **146** is provided along the face of the manifold **136**, which also assists in evenly distributing the flow of the lotion **104** across the roller applicator **106**.

[0050] In a preferred embodiment, there are six outlets **144** distributed even distances across the width of the manifold **136**, which substantially spans the width of the roller applicator **106**. The outlets **144** that are most centrally located in the manifold **136** are the narrowest in diameter and the outlets **144** most peripherally located are the largest in diameter. The variation in outlet diameter varies the pressure at each outlet **144** and provides a more consistent coating of lotion **104** across the width of the roller assembly **106**. In addition, a distribution channel **146** is provided along the face of the manifold **136** surrounding the outlets **144**, which also assists in evenly distributing the flow of the lotion **104** across the roller applicator **106**. In a preferred embodiment, the distribution channel **146** is a shallowly recessed rectangular channel that allows the lotion **104** to spread out within the distribution channel **146** to be more evenly spread across the roller applicator **106**.

[0051] Returning to FIG. **1**, the roller applicator **106** shown is a four-inch wide, dense foam with a felt outer layer that provides a soft, gentle application. It is understood, however, that the roller applicator **106** may be provided in various shapes, sizes, and materials to accomplish the advantages described herein. In the example shown, the roller applicator **106** is removable for cleaning and/or replacement. As shown, the roller applicator **106** is held in place with a snap-fit connection at either end of the roller applicator **106**, which secures the roller applicator **106** within the head unit **142** directly against the manifold **136**, which assists in keeping the dispensing of the lotion **104** clog-free and even.

[0052] A removable cover **116** protects the roller applicator **106**, as further shown in FIG. **1**. The cover may be, for example, a clear plastic protector that rotates away from the roller applicator **106** to uncover the roller applicator **106** for use and then rotates back into position to seal the head unit **142** when it is not in use. For example, when it is to be stored or transported.

[0053] The head unit **142** shown in FIG. **1** is reversible to adapt the lotion applicator **100** for either left or right hand use. The head unit **142** may be reversed by removing it from the handle **110** and reconnecting it after it has been rotated 180 degrees.

[0054] It should be noted that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications may be made without departing from the spirit and scope of the present invention and without diminishing its attendant advantages.

I claim:

1. A lotion applicator comprising:

a holding tank adapted to store a quantity of viscous material;

a body within which the holding tank is located, wherein the body includes a proximal end and a distal end, wherein the body further includes a handle located closer to the proximal end than the distal end;

a trigger located on the body such that a user can activate the trigger while grasping the handle;

a roller applicator located adjacent to the distal end of the body;

a pump mechanism activated by the trigger to pump any viscous material stored in the holding tank from the tank;

a manifold for receiving any viscous material pumped from the holding tank and distributing any viscous material pumped from the holding tank onto the roller applicator; and

a cover movable between a first position in which it seals the roller applicator and a second position in which the roller applicator is exposed.

2. The lotion applicator of claim **1** wherein the manifold includes a plurality of outlets, wherein the outlets vary in diameter with respect to each other.

3. The lotion applicator of claim **2** wherein the manifold includes six evenly spaced outlets, including an inner pair of outlets, a middle pair of outlets, and an outer pair of outlets, wherein the inner pair of outlets is the smallest and the outer pair of outlets is the largest.

4. The lotion applicator of claim **1** wherein the manifold includes a distribution channel surrounding the outlets.

5. The lotion applicator of claim **1** wherein the trigger is activated by squeezing the trigger towards the handle.

6. The lotion applicator of claim **1** wherein the roller applicator is a foam roller.

7. The lotion applicator of claim **1** wherein the roller applicator is cylindrical shaped.

8. The lotion applicator of claim **1** wherein the pump mechanism includes a piston disk that pressurizes any viscous material stored in the holding tank when advanced into the holding tank by the trigger.

9. The lotion applicator of claim **8** wherein the trigger advances the piston disk using a ratcheting mechanism.

10. The lotion applicator of claim **9** wherein the piston disk is prevented from backing out of the holding tank by a spring-loaded locking mechanism.

11. A lotion applicator comprising:

a body including a holding tank adapted to store a quantity of lotion;

a roller applicator at one end of the body;

a pump mechanism adapted to pump lotion from the holding tank to the roller applicator;

a manifold adjacent to the roller applicator adapted to coat the roller applicator with the lotion pumped from the holding tank; and

a cover moveable between a first position in which it seals the roller applicator, thereby also sealing the holding tank, and a second position in which it uncovers the roller applicator for use.

12. The lotion applicator of claim **11** wherein the body includes a trigger that activates the pump mechanism.

13. The lotion applicator of claim **12** wherein the pump mechanism is activated by squeezing trigger.

14. The lotion applicator of claim **11** wherein the roller applicator is a cylindrical foam roller.

15. The lotion applicator of claim **14** wherein the manifold is within ten percent of the width of the roller applicator.

16. The lotion applicator of claim **15** wherein the manifold includes a series of outlets across the width of the manifold.

17. The lotion applicator of claim **16** wherein the series of outlets are evenly spaced across the width of the manifold.

18. The lotion applicator of claim **17** wherein the outlets further from center of the manifold are larger in diameter than the outlets closer to the center of the manifold.

19. The lotion applicator of claim **18** wherein the manifold further includes a distribution channel surrounding the outlets.

20. The lotion applicator of claim **11** wherein the pump mechanism includes a spring-loaded locking mechanism through which a user may reset the association between the pump mechanism and the holding tank.

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