IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

JUDGE JOHN W DARRAH

MAGISTRATE JUDGE MAS

Viridian Packaging Solutions, LLC, f/k/a GMP Products, LLC,

Plaintiff,

vs.

Zila, Inc. and Zila Swab Technologies, Inc., d/b/a Innovative Swab Technologies,

Defendants.

03C 3285

Civil Action No.

JURY DEMAND

DOCKETED

MAY 19 2003

COMPLAINT FOR DECLARATION OF NON-INFRINGEMENT AND PATENT INVALIDITY

Viridian Packaging Solutions, LLC ("Viridian"), for its Complaint for Declaration of Non-infringement and Invalidity of U.S. Patent No. 4,952,204 ("'204 Patent") against defendants, Zila, Inc. and Zila Swab Technologies, Inc., a wholly owned subsidiary of Zila, Inc. (collectively "Zila") alleges as follows:

PARTIES

1. Viridian Packaging Solutions, LLC is a limited liability company organized and existing under the laws of the State of Illinois having a principal place of business in Gurnee, Illinois. Viridian manufactures and sells swab applicators.

2. Zila, Inc. is a corporation formed under the laws of the State of Delaware. Zila, Inc. manufactures and distributes pharmaceutical, biomedical, dental and nutritional products.

3. Zila Swab Technologies, Inc.is a corporation organized and existing under the laws of the State of Arizona with its principal place of business in Phoenix, Arizona

and a place of business in Antioch, Illinois, within this judicial district and Eastern Division thereof. Zila Swab Technologies, Inc. manufactures and sells swab applicators.

4. Zila claims ownership as the rightful assignee of the '204 Patent, issued August 8, 1990, entitled "Dry Handle Swab Assembly and Unit."

JURISDICTION and VENUE

5. This Court has subject matter jurisdiction over this action under 28 U.S.C. §§ 1331, 1338(a), and the Declaratory Judgment Act, 28 U.S.C. §§ 2201, 2202.

6. Venue is proper in this judicial district under 28 U.S.C. §§ 1391(c).

The Patents

7. Viridian is the assignee of U.S. Patent No. 6,516,947 ("the '947 Patent") for "Containers Having a Fracture Recess for Opening the Containers." A copy of the '947 Patent is attached hereto as Exhibit A. Viridian employs the '947 Patent in the manufacture of its "dry handle swab" applicator products.

8. Zila is the assignee of U.S. Patent No. 4,952,204 ("the '204 Patent") for a "Dry Handle Swab Assembly and Unit." A copy of the '204 Patent is attached hereto as Exhibit B.

9. On or about January 13, 2003 Zila, Inc. and Zila Swab Technologies, Inc, filed a patent infringement action against one of Viridian's customers, Beutlich, L.P., styled *Zila, Inc. and Zila Swab Technologies, Inc. vs. Beutlich L.P. and Beutlich Pharmaceuticals, L.P.*, CIV-03-0039 PHX FJM, District of Arizona, and asserted, *inter alia*, that Beutlich's selling or offering to sell a Viridian dry handle swab applicator infringes Zila Swab's '204 patent.

10. Viridian and Beutlich, L.P. have denied that their products infringe upon the '204 Patent.

11. Zila filed an Unfair Competition and Misappropriation of Trade Secrets action, which is still pending, in the Northern District of Illinois, Eastern Division styled *Zila Swab Technologies, Inc., d/b/a Innovative Swab Technologies vs. Darrell W. Van Dyke and GMP Products, LLC,* 01C8729 (Honorable Milton I. Shadur) and as such, has availed itself of the jurisdiction of this Court.

12. A case or controversy exists between Viridian and Zila Swab as to infringement and validity of the '204 patent.

Count I-Declaration of Non-infringement of the '204 Patent

13. Viridian incorporates and realleges paragraphs 1-12 as if fully set forth herein.

14. Viridian's dry handle swab applicators do not infringe any claim of the '204 patent.

WHEREFORE, Plaintiff, Viridian Packaging Solutions, LLC, prays this Court enter judgment in its favor and against Defendants, Zila, Inc. and Zila Swab Technologies, Inc.:

A. Declaring, adjudging and decreeing that its design, manufacture and sale of swab applicators do not infringe upon the claims of U.S. Patent No. 4,952,204;

B. Awarding such other and further relief as this Court deems appropriate; and

C. An order that this is an exceptional case under 35 U.S.C. § 285 and Viridian be awarded its reasonable attorneys' fees, expenses and costs in this action.

Count II – Declaration of Invalidity of the '204 Patent

15. Viridian incorporates and realleges paragraphs 1-12 as if fully set forth herein.

16. One of more claims of the '204 Patent are invalid under 35 U.S.C §§ 102 and/or 103 in view of the prior art.

WHEREFORE, Plaintiff, Viridian Packaging Solutions, LLC, prays this Court enter judgment in its favor and against Defendants, Zila, Inc. and Zila Swab Technologies, Inc:

A. Declaring, adjudging and decreeing that U.S. Patent No. 4,952,204 is invalid;

B. Awarding such other and further relief as this Court deems appropriate; and

C. An order that this is an exceptional case under 35 U.S.C. § 285 and Viridian be awarded its reasonable attorneys' fees, expenses and costs in this action.

JURY DEMAND

Viridian demands a jury for all issues triable to a jury.

Respectfully submitted,

Dated: 5/16/03

John M. Drews
Drews & Associates, P.C.
1900 Spring Road
Suite 200
Oak Brook, Illinois 60523
630.954.2875

Alan L. Barry
Bell Boyd & Lloyd
70 W. Madison Street
Suite 3300
Chicago, IL 60602
312.372.1121

Attorneys for Plaintiff
VIRIDIAN PACKAGING
SOLUTIONS, LLC

US006516947B1

(12) **United States Patent**
Van Dyke et al.

(10) **Patent No.: US 6,516,947 B1**
(45) **Date of Patent: Feb. 11, 2003**

(54) **CONTAINERS HAVING A FRACTURE RECESS FOR OPENING THE CONTAINERS**

(75) Inventors: **Darrell W. Van Dyke**, Libertyville, IL (US); **Frederic J. Beutlich**, Mundelein, IL (US)

(73) Assignee: **Viridian Packaging Solutions, LLC**, Gurnee, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/637,439**

(22) Filed: **Aug. 11, 2000**

(51) **Int. Cl.**[7] **B65D 83/10**
(52) **U.S. Cl.** **206/361**; 604/363; 604/1
(58) **Field of Search** 206/363, 210, 206/361; 604/1, 2, 3; 401/132

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Primary Examiner—Mickey Yu
Assistant Examiner—Jila M. Mohandesi
(74) *Attorney, Agent, or Firm*—Bell, Boyd & Lloyd LLC

(57) **ABSTRACT**

A closed plastic container has a plastic elongated sleeve which has a hollow interior. An exterior fracture recess extends from an exterior surface of the sleeve inward to form a reduced wall thickness for opening the container. The container is opened by squeezing or bending the container at the exterior fracture recess. The closed container may have an applicator material inside or outside of the container. A substance contained within the container is dispensed and applied when the container is opened at the fracture recess. An inner closed container having an exterior fracture recess can be contained within an outer closed container also having an exterior fracture recess.

30 Claims, 3 Drawing Sheets

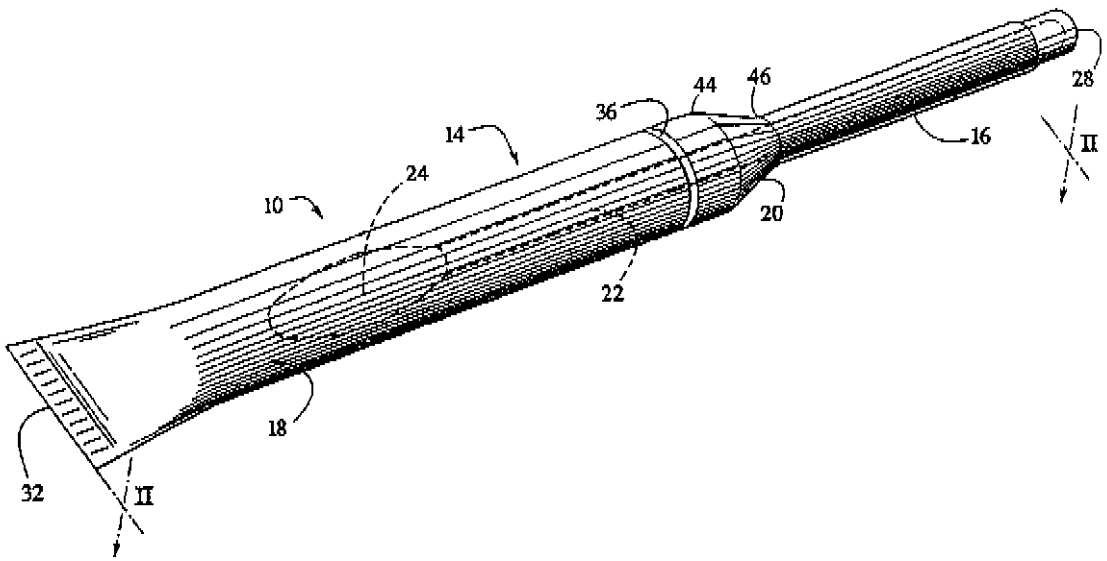

EXHIBIT
A

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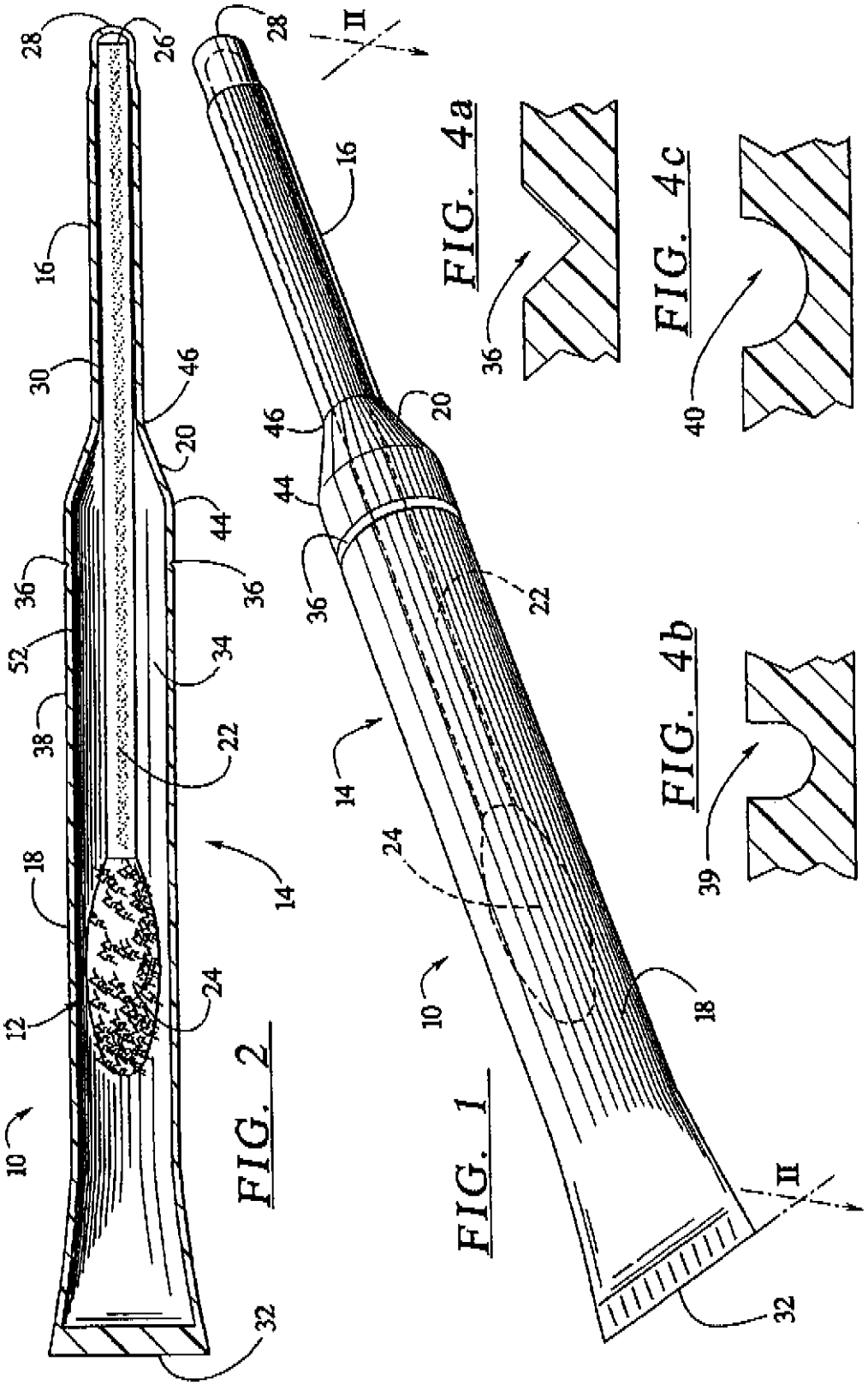
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II
FIG. 2
FIG. 1
FIG. 4a
FIG. 4c
FIG. 4b
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FIG. 3

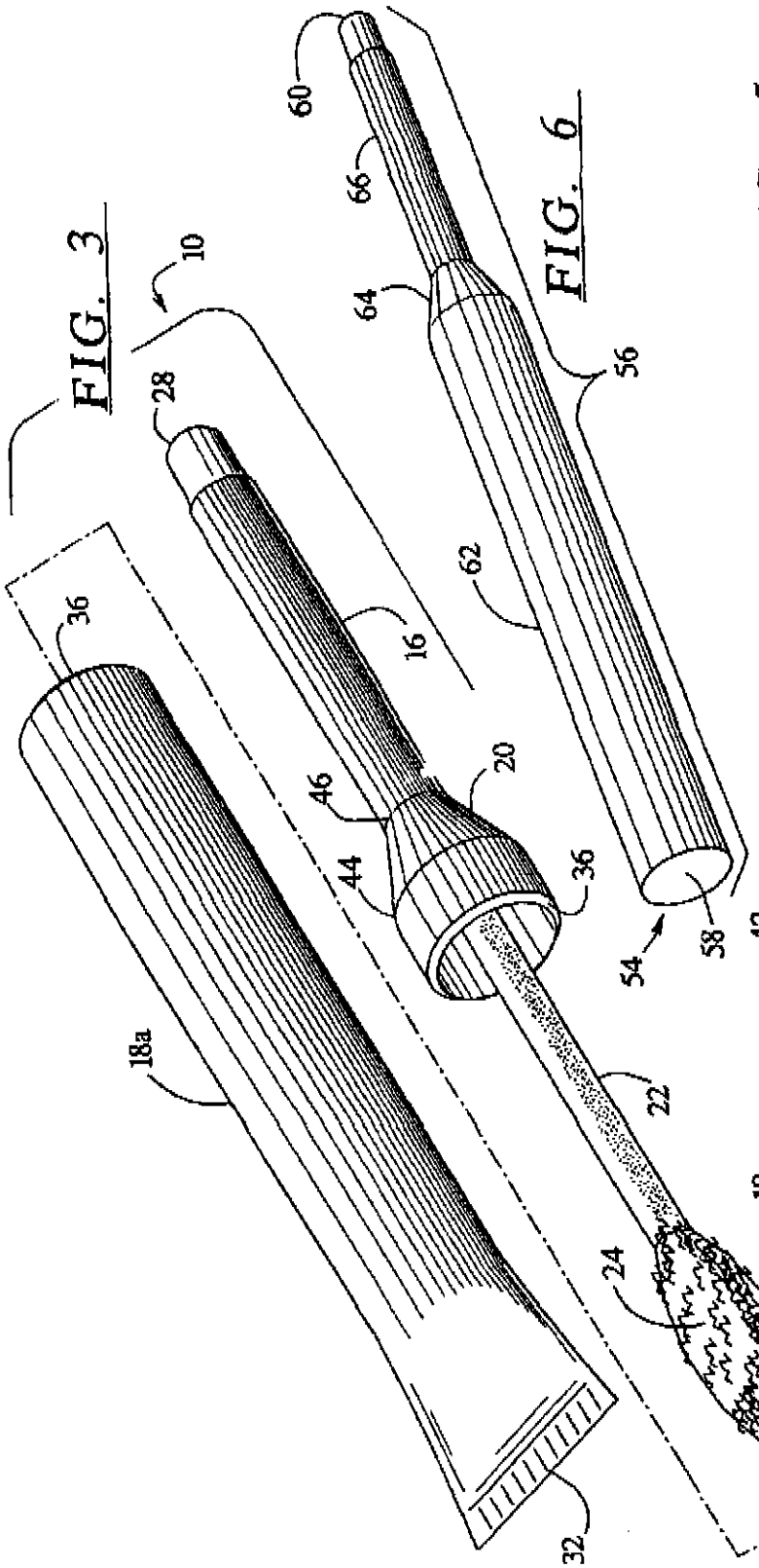
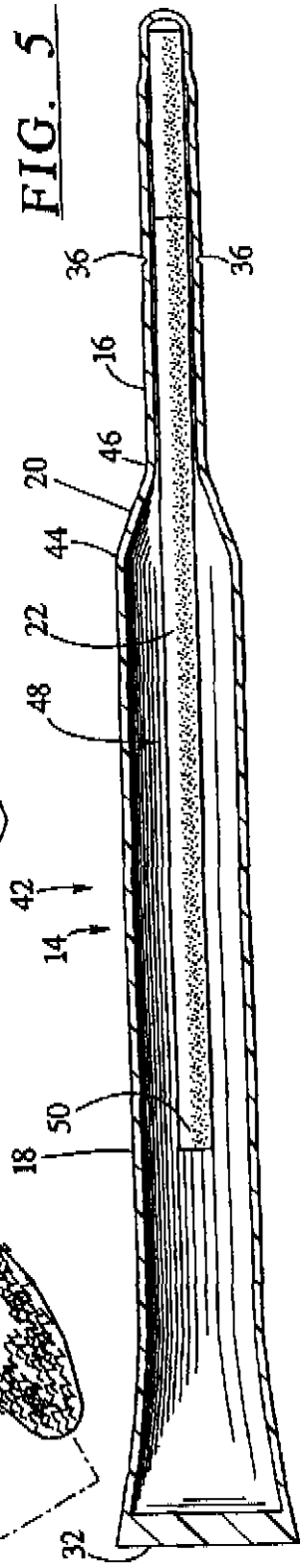


FIG. 6

FIG. 5



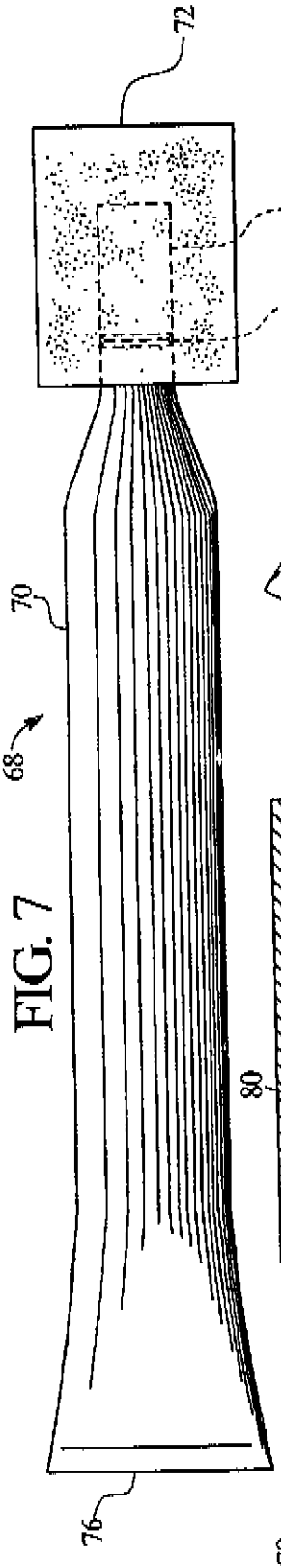


FIG. 7

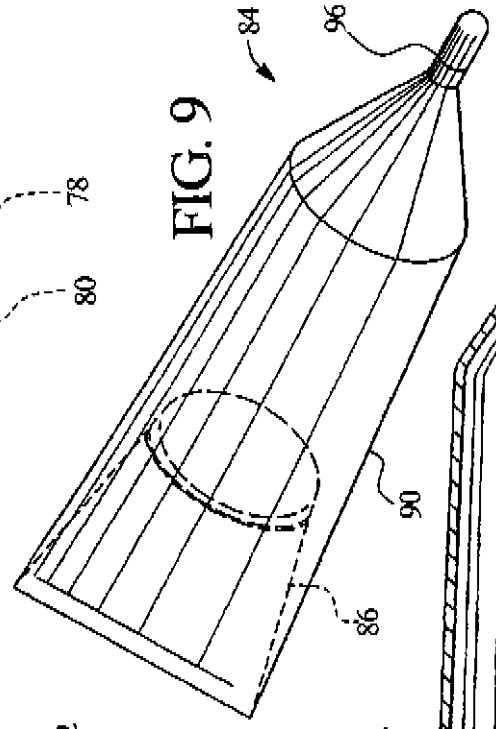


FIG. 9

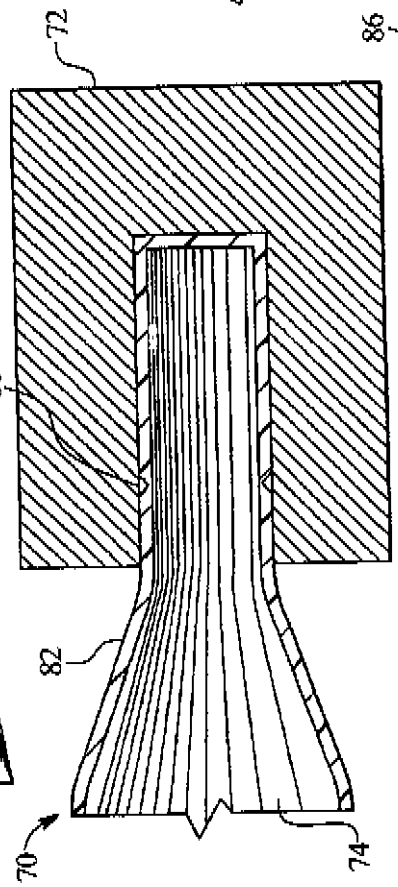


FIG. 8

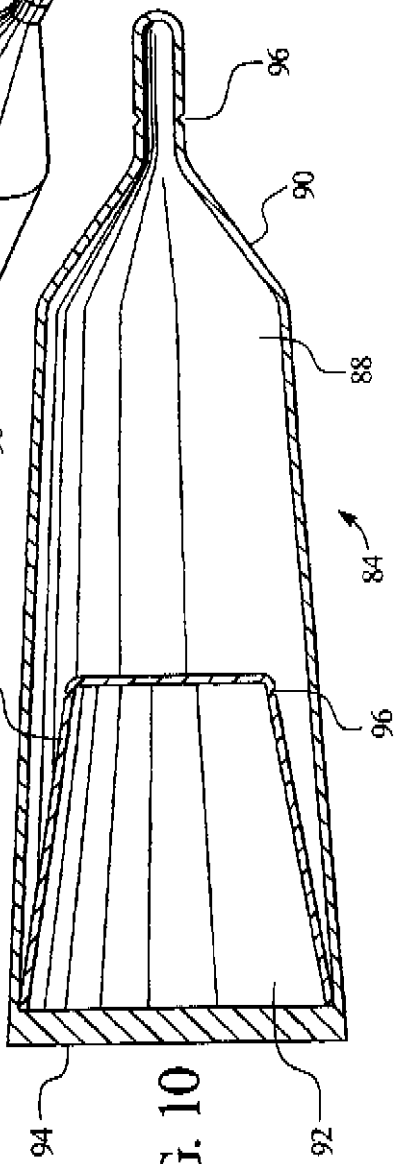


FIG. 10

CONTAINERS HAVING A FRACTURE RECESS FOR OPENING THE CONTAINERS

FIELD OF THE INVENTION

The present invention generally relates to containers, and more specifically, the present invention relates to closed containers which have a fracture recess on an exterior surface for opening the containers. The closed containers may contain a substance, such as a medical fluid, which is dispensed and applied when the container is opened at the fracture recess. The present invention also relates to methods of making the containers and methods of using the containers.

BACKGROUND OF THE INVENTION

Swab applicators are one example of a product which has a container. Swab applicators typically include a swab having an applicator head connected to a handle. The swab is contained within a closed container package which can be opened to expose the swab for use. The swab may contain a medical fluid, for example, which can be applied to a patient.

One example of a swab applicator can be found in U.S. Pat. No. 4,952,204 entitled Dry Handle Swab Assembly Unit, which issued on Aug. 28, 1990. The '204 patent describes a swab contained within a sleeve which can readily be opened by use of manual force. The swab has a substance which can be applied by the swab. The swab has a straight hollow plastic stick with a bud of cotton attached on one end. The sleeve consists of a relatively small diameter cylindrical handle portion at one end, a substantially larger diameter receptacle portion at the opposite end, and a transition portion of compound configuration therebetween. A tip of the handle portion of the sleeve engages a tip of the swab stick. The intersection between the receptacle and transition portions forms a sharp angle on an interior of the sleeve. The sleeve is opened by squeezing the sleeve at the intersection between the receptacle and transition portions and breaking the sleeve at the interior sharp angle.

Examples of other containers include applicators or dispensers having sharp interior angles to open the containers, and include U.S. Pat. No. 4,927,012 entitled Packaging Assembly for Substances to be Post-Mixed, which issued on May 22, 1990, U.S. Pat. No. 5,229,061 entitled Mold and Method for Producing a Hollow Tube Component for a Dispensing Applicator, which issued on Jul. 20, 1993, and U.S. Pat. No. 5,326,603 entitled Hollow Tube Component for a Dispensing Applicator, which issued on Jul. 5, 1994.

Existing applicators and dispensers can be improved. For example, existing applicators and dispensers having sharp interior angles for opening the applicators and dispensers have a relatively complex structure. Molds having intricate shapes are required in order to manufacture such applicators and dispensers. Because of the intricate structure of the interior sharp angles which is used for opening the applicators and dispensers, there are limited locations on the applicators and dispensers where the sharp interior angle can be formed. Also, the exterior shape of the applicators and dispensers tend to be more intricate in the area of the interior sharp angle.

SUMMARY OF THE INVENTION

The present invention provides new containers which have a new structure for opening the containers. The new

containers have a fracture recess on an exterior of the containers which allows for easy and reliable opening of the containers. The exterior fracture recess allows for flexibility where the fracture recess is located on the containers and thus, there is flexibility in locating the area where the containers are opened. A substance, such as a medical fluid or a powder, can be contained within the container and dispensed when the container is opened at the fracture recess. The new containers are easy to manufacture and can be manufactured by simple molds, such as a dip-mold to make a plastic container. The exterior fracture recess allows for labels to be applied on the outside of the containers such that the labels cover the fracture recess and provide advantageous appearance to the containers. The present invention also provides methods of making the containers and methods of using the containers.

Examples of the present invention include applicators and dispensers in general, and more specifically, swab applicators and pop ampule packages.

Various advantages of the present invention can become apparent upon reading this disclosure including the appended claims with reference to the accompanying drawings. The advantages may be desired, but not necessarily required to practice the present invention.

One plastic container according to the present invention has a plastic elongated sleeve which has a hollow interior. The elongated sleeve has a wall which has a wall thickness. A fracture recess extends from an exterior surface of the wall inward into the wall. The wall has a reduced wall thickness at the fracture recess. The fracture recess can have various shapes, such as a V-shape, U-shape, and wide U-shape.

One swab applicator according to the present invention has a closed package having a package handle connected to a swab head enclosure, a swab is contained within an interior of the closed package. The swab has a swab handle connected to the package handle and a swab head inside the swab head enclosure. A fracture recess extends inward from an exterior surface of the closed package.

Another swab applicator according to the present invention has a first tubular portion having a first cross-sectional area perpendicular to a longitudinal direction of the swab applicator, a second tubular portion having a second cross-sectional area perpendicular to the longitudinal direction which is smaller than the first cross-sectional area of the first tubular portion, and a connection portion between and connected to the first and second tubular portions. A closed interior is defined at least by the first tubular portion, the connection portion and the second tubular portion. A swab is contained within the closed interior and has a handle connected to the second tubular portion and a head within the first tubular portion. A fracture recess extends inward from an exterior surface of the at least one of the first tubular portion, the connection portion, and the second tubular portion.

An applicator package according to the present invention has a closed package having an interior sealed from an exterior of the closed package. The closed package has a fracture recess on an exterior surface of the closed package. An applicator material is positioned either in the interior of the closed package or on an exterior of the closed package.

Another swab applicator according to the present invention has a dip-molded closed package having a cylindrical package handle connected to a cylindrical swab head enclosure by a tapered section having a first end connected to the swab head enclosure and a second end connected to the package handle. A swab is contained within an interior of the

closed package. The swab has a swab handle connected to the package handle and a swab head inside the swab head enclosure. A fracture recess extends inward from an exterior surface of the closed package.

One method of making a swab applicator according to the present invention includes the steps of dipping a dip mold in a reservoir of plastic material, removing the mold from the reservoir with a coating of plastic material on the dip mold forming a swab container, removing the swab container from the dip mold, forming a fracture recess on an exterior of the swab container, inserting a swab inside of the swab container, and sealing the swab container closed. A label can be adhered to the exterior of the swab container, for example, after the step of forming the fracture recess.

One method of opening a swab applicator according to the present invention pertains to swab applicator having a closed package having a package handle connected to a swab head enclosure. A swab is contained within an interior of the closed package. The swab has a swab handle connected to the package handle and a swab head inside the swab head enclosure. A fracture recess extends inward from an exterior surface of the closed package. The method includes the steps of squeezing or bending at the exterior recess, opening the closed package by fracturing the closed package at the exterior fracture recess, and exposing the swab head or the contents.

A dispenser package according to the present invention has an outer closed package which has a hollow interior. A portion of the outer closed package is openable. An inner closed package is contained inside of the outer closed package and has a hollow interior. A portion of the inner closed package is openable such that the interior of the inner closed package is in communication with the interior of the outer closed package. At least one of the openable portions of the outer and inner closed packages has an exterior fracture recess.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a swab applicator according to the principles of the present invention.

FIG. **2** is a partial cross-sectional view of the swab applicator of FIG. **1** along the line II—II.

FIG. **3** is an exploded perspective view of the swab applicator of FIG. **1** after the swab applicator is opened.

FIG. **4***a* is an enlarged partial cross-sectional view of an exterior fracture recess of the swab applicator of FIG. **1**.

FIG. **4***b* is an enlarged cross-sectional view of another exterior fracture recess.

FIG. **4***c* is an enlarged cross-sectional view of another exterior fracture recess.

FIG. **5** is a partial cross-sectional view of another swab applicator according to the principles of the present invention.

FIG. **6** is a perspective view of a dip mold according to the principles of the present invention.

FIG. **7** is a front elevational view of an applicator according to the principles of the present invention.

FIG. **8** is an enlarged, cross-sectional view of a portion of the applicator of FIG. **7**.

FIG. **9** is a perspective view of a pop ampule package according to the principles of the present invention.

FIG. **10** is a cross-sectional view of the pop ampule package of FIG. **9**.

DETAILED DESCRIPTION OF PRESENTLY PREFERRED EMBODIMENTS

Although the present invention can be made in many different forms, the presently preferred embodiments are described in this disclosure and shown in the attached drawings. This disclosure exemplifies the principles of the present invention and does not limit the broad aspects of the invention only to the illustrated embodiments.

The present invention generally pertains to plastic containers having an exterior fracture recess for opening the containers. However, specific examples of the present invention are shown and described, which include applicators/dispensers having a swab or a pad, and a pop ampule package.

A new swab applicator **10** according to the principles of the present invention is shown by way of example in FIGS. **1** and **2**. The swab applicator **10** has a swab **12** contained within a sealed package **14**. The package **14** is sealed closed and provides a container to contain the swab **12**. The package **14** has a package handle **16** at one end and a swab head enclosure **18** at an opposite end. A connection portion **20**, such as a tapered section, connects the swab head enclosure **18** to the package handle **16**.

Preferably, the package **14** has a generally elongated cylindrical shape. Accordingly the swab head enclosure **18** and the package handle **16** can have cylindrical shapes. The swab applicator **10** defines a longitudinal direction along the elongated direction of the package **14**. The swab head enclosure **18** has a relatively larger diameter than a diameter of the package handle **16**. Also, the cross-sectional area of the swab head enclosure **18** perpendicular to the longitudinal direction is greater than the cross-sectional area of the package handle **16** perpendicular to the longitudinal direction. The connection portion **20** is a tapered section which reduces in diameter and cross-sectional area perpendicular to the longitudinal direction to join the swab head enclosure **18** to the package handle **16**.

The swab **12** is contained inside of the package **14**, and has a swab handle **22** and a swab head **24** at one end of the swab handle **22**. The swab head **24** may be made from a rayon or foam material or any other suitable material. The swab handle **22** has a distal end **26** which is engaged with an end **28** of the package handle **16** by an interference fit. A gap **30** may be provided between the package handle **16** and the portion of the swab handle **22** which is not engaged with end **28** of the package handle **16**. The swab handle **22** has a length such that the swab head **24** is contained within the swab head enclosure **18** of the package **14**.

The swab applicator **10**, particularly the package **14**, has a sealed end **32** opposite the end **28** of the package handle **16**. The sealed end **32** may be sealed by various mechanisms, for example, heat sealing. Accordingly, the swab **12** is contained within an interior **34** of the sealed package **14**.

The swab head **24** may contain various substances. For example, the swab head **24** may contain a medical fluid which can be applied to a patient during use of the swab applicator **10**. The swab applicator **10** can also be used for purposes other than medical applications. For example, the swab applicator **10** could be used for application of cosmetics. Although the present invention is described as an applicator, a substance does not have to actually be applied by the swab **12** to practice the invention. For example, the swab applicator **10** can be used without a substance on the swab head **24** by using the swab **12** to collect a sample from another source.

The swab applicator **10** has a fracture recess **36** on an exterior surface **38** of the package **14**. The fracture recess **36** extends from the exterior surface **38** towards the interior **34** of the package **14**. The fracture recess **36** is a reduced

material thickness of the wall of the package **14** which creates a structurally weak area in the package **14**. The fracture recess **36** is located on the swab head enclosure **18**. Preferably, the fracture recess **36** circumscribes the swab head enclosure **18** of the package **14**. Although, the fracture recess **36** may extend around only a portion of the exterior surface **38** of the package **14**.

The swab applicator **10** is used by breaking the package **14** open at the exterior fracture recess **36**. The package **14** is fractured at the fracture recess **36** by creating stress in the package material at the location of the fracture recess **36**. For example, the package **14** can be squeezed or bent at the fracture recess **36** which creates stress at the fracture recess **36**. At least a portion of the wall of the package **14** will fracture at the fracture recess **36**.

Referring to FIG. **3**, a portion **18***a* of the swab head enclosure **18** is severed from the remainder of the package **14**. The severed portion **18***a* of the swab head enclosure **18** is removed to expose the swab head **24** of the swab **12**. If the severed portion **18***a* of the swab head enclosure **18** is not completely severed from the remainder of the package **14**, the connection between the severed portion **38** and the remainder of the package **14** may form a hinge such that the severed portion **38** can be bent back on the hinge to expose the swab head **24**.

The fracture recess **36** has a V-shape as shown in the enlarged cross-sectional view of FIG. **4***a*. However, the fracture recess **36** may have many different shapes. For example, FIG. **4***b* shows a fracture recess **39** having a U-shape, and FIG. **4***c* shows a fracture recess **40** having a wide U-shape.

The fracture recess **36** can be placed at any desired location along the elongated package **14**. For example, FIG. **5** shows a partial cross-sectional view of another swab applicator **42**. The swab applicator **42** has a package **14** in which the fracture recess **36** is located in the package handle **16**. Other locations for the fracture recess **36** include, for example, the connection portion **20**, a junction **44** between the swab head enclosure **18** and the connection portion **20**, and a junction **46** between the connection portion **20** and the package handle **16**. The location of the fracture recess **36** in the swab applicator **10** of FIG. **2** is located in the swab head enclosure **18** at a distance away from the junction **44** between the swab head enclosure **18** and the connection portion **20**. Referring back to FIG. **5**, another swab **48** usable with the swab applicator **42** is shown. Similar to the swab **12** shown in FIG. **2**, the swab **48** has a swab handle **22**. However, the swab head **50** of the swab **48** is not an enlarged head. For example, the swab head **50** may just be a portion of a plastic swab handle **22**. The swab head **50** may be absorbent or non-absorbent as desired. The swab **48** could be used to spread a substance supplied from another source, for example. The swab **48** can be advantageous when the fracture recess **36** is located in the package handle **16** because when the package **14** is opened minimal or no wiping of the swab head **50** will occur by removing the severed portion of the package **14**.

Referring to FIG. **2**, the interior diameter of the swab head enclosure **18** along the longitudinal length of the swab head enclosure **18** is substantially constant. Although, there is a slight decrease in the inside diameter of the swab head enclosure **18** from the sealed end **32** toward the package handle **16**. The package handle **16** may also have a slight taper of the inside diameter reducing in diameter toward the end **28**. The slight tapering of the inside diameters of the package **14** facilitates removal of the package **14** from a dip mold. As shown in FIG. **2**, the inside diameter of the swab head enclosure **18** and as shown in FIG. **5** the inside diameter of the package handle **16** are substantially constant above and below the fracture recesses **36**. In other words, the interior surface **52** in the area of the fracture recess **36** has a smooth contour.

A dip mold **54** for use in making the swab applicator **10** is shown in FIG. **6**. The dip mold **54** has a smooth exterior surface **56** from an end **58** to an opposite end **60**. The end **58** of the dip mold **54** creates an open end of the package **14** which is then closed and sealed to form the sealed end **32** of the package **14**. Of course, the end **60** of the dip mold **54** forms the end **28** of the package handle **16**. The dip mold **54** has a swab head enclosure molding portion **62** connected to a connection portion molding portion **64** which is connected to a package handle molding portion **66**. Of course the molding portions **62**, **64**, **66** respectively mold the swab head enclosure **18**, the connection portion **20**, and the package handle **16** of the package **14**.

Referring to FIGS. **1**, **2**, and **6**, a method of making the swab applicator **10** will now be described. The package **14** is made by a dip molding process. The dip mold **54** which has an exterior shape the same shape as the interior of the package **14** is heated and dipped into a reservoir of plastic material. The plastic material fluidly forms around the dip mold **54** and coats the dip mold **54** with a coating of the plastic material. The dip mold having the coating of plastic material is removed from the reservoir and the plastic material is cooled which forms a container. The package **14** is removed from the dip mold **54**, and at this stage has an opened end which will later be sealed closed to form the sealed end **32**. The fracture recess **36** is provided on the exterior of the package **14**. For example, the fracture recess **36** may be carved as a score line into the package **14** by a knife. The swab **12** is inserted into the package **14** and the end **26** of the swab handle **22** is engaged with the end **28** of the package handle **16**. The open end of the package **14** is heat sealed closed to form a sealed end **32** and enclose the swab **12** within the package **14**.

The fracture recess **36** can be formed in various ways and at various stages during the manufacture of the swab applicator **10**. For example, the fracture recess **36** can be provided before or after the package **14** is removed from the dip mold **54** or after the swab **12** is sealed closed within the package **14**.

FIGS. **7** and **8** show another applicator/dispenser package according to the present invention. The applicator **68** has a closed container **70** and an applicator pad **72**. The container **70** is an elongated plastic dip-molded cylindrical sleeve and has a hollow interior **74**. The container **70** has a sealed end **76** opposite a dispensing end **78** which has a reduced diameter. An exterior fracture recess **80** is provided at the dispensing end **78** and circumscribes the container **70**. The exterior fracture recess extends from an outer surface **82** of the container **70** inward and forms a reduced material thickness in the wall of the container **70**.

The applicator pad **78** is provided on the outside of the container **70** at the dispensing end **78**, and preferably circumscribes the dispensing end **78**. The applicator pad **78** is adhered to the container **70** by an adhesive, for example, and covers the fracture recess **80**. A fluid or other material to be dispensed is contained in the hollow interior **74** of the closed applicator package **86**.

The applicator package **68** is used by opening the container **70** at the fracture recess **80**. The container **70** is squeezed or bent at the fracture recess **80** and the wall of the

container **70** breaks open at the fracture recess **80**. The substance contained in the interior **74** of the container **70** can flow into the applicator pad **72** for application as desired. Squeezing the flexible container **70** may assist the substance to flow into the applicator pad **72**.

When the container **70** is opened, the fracture recess **80** may remain partially intact (fracture only partially around the container **70**) or may be fully severed around the container. The applicator pad **72** is adhered to the container **70** on the left and right sides of the fracture recess **80** as viewed in FIGS. **7** and **8**. Accordingly, the applicator pad **72** holds the severed portions of the container **70** together.

A pop ampule package **84** is shown in FIGS. **9** and **10**. The pop ampule package **84** has an inner container **86** contained within a hollow interior **88** of an outer container **90**. The inner and outer containers **86**, **90** are both sealed closed, and a hollow interior **92** of the inner container **86** is sealed from the interior **88** of the outer container **90**. The inner and outer containers **86**, **90** can contain substances which are maintained separate from each other until it is desired to mix the substances together. The inner and outer containers **86**, **90** are elongated, plastic dip-molded cylindrical sleeves which are sealed together at an end **94** of the pop ampule package **84**.

Both of the inner and outer containers **86**, **90** are openable. One or both of the inner and outer containers **86**, **90** has an exterior fracture recess **96** for opening the container. If only one of the inner and outer containers **86**, **90** has the exterior fracture **96**, the other container can be opened by any other suitable manner. For example, the outer container **90** can be opened by cutting the reduced diameter end.

The pop ampule package **84** is used by opening the inner container **86** by squeezing or bending the inner container **86** at the fracture recess **96**. The interiors **92**, **88** of the inner and outer containers **86**, **90** are in communication with each other and the substances within the inner and outer containers **86**, **90** can be mixed together. Next, the outer container **90** is opened by squeezing or bending at its fracture recess **96**. The mixed substances can be dispensed and applied from the pop ampule package **84**.

While the presently preferred embodiments have been illustrated and described, numerous changes and modifications can be made without significantly departing from the spirit and scope of this invention. Therefore, the inventors intend that such changes and modifications are covered by the appended claims.

The invention is claimed as:

1. A plastic container comprising:

a plastic elongated sleeve having a hollow interior and an inside diameter which is reduced in dimension at a first end portion of the sleeve relative to an opposite second end portion of the sleeve, the elongated sleeve having a wall having a wall thickness;

an inside diameter reduction transition portion between the first and second end portions;

a swab head in the hollow interior at the second end portion of the sleeve; and

a fracture recess extending from an exterior surface of the wall inward into the wall and positioned at a location on the second end portion of the sleeve spaced away from a junction between the second end portion and the transition portion, the wall having a reduced thickness at the fracture recess.

2. The plastic container of claim **1**, wherein the elongated sleeve is sealed closed.

3. The plastic container of claim **1**, wherein the elongated sleeve is a dip-molded sleeve having opposite closed ends.

4. The plastic container of claim **1**, wherein the fracture recess circumscribes the elongated sleeve.

5. The plastic container of claim **1**, wherein the elongated sleeve has a substantially cylindrical shape, and the inside diameter of the elongated sleeve is substantially constant from a location above the fracture recess to a location below the fracture recess.

6. The plastic container of claim **1**, wherein the fracture recess has a V-shape.

7. The plastic container of claim **1**, wherein the fracture recess has a U-shape.

8. The plastic container of claim **1**, wherein the fracture recess has a wide U-shape.

9. The plastic container of claim **1**, wherein an interior surface of the wall of the elongated sleeve opposite the fracture recess has a smooth contour.

10. The plastic container of claim **1**, wherein the fracture recess is a score line cut into the wall.

11. The plastic container of claim **1**, wherein the swab head is an applicator material connected to a swab handle.

12. The plastic container of claim **1**, wherein the elongated sleeve is uniformly tapered from the one sleeve end portion to the opposite sleeve end portion.

13. A swab applicator comprising:

a closed package having a package handle connected to a swab head enclosure, the swab head enclosure and the package handle have cylindrical shapes and the swab head enclosure having a larger diameter than the package handle, and further comprising a tapered section having a first end connected to the swab head enclosure and a second end connected to the package handle;

a swab contained within an interior of the closed package, the swab having a swab handle connected to the package handle and a swab head inside the swab head enclosure; and

a fracture recess extending from an exterior surface of the closed package into a wall of the closed package and being located at a position on the swab head enclosure spaced away from a junction between the swab head enclosure and the first end of the tapered section.

14. The swab applicator of claim **13**, wherein the fracture recess circumscribes the closed package.

15. The swab applicator of claim **13**, wherein the swab head enclosure has a cylindrical shape, and an interior diameter of the swab head enclosure is substantially constant from a location above the fracture recess to a location below the fracture recess.

16. The swab applicator of claim **13**, wherein the fracture recess has a V-shape.

17. The swab applicator of claim **13**, wherein the fracture recess has a U-shape.

18. The swab applicator of claim **13**, wherein the fracture recess has a wide U-shape.

19. The swab applicator of claim **13**, wherein an interior surface of the closed package opposite the fracture recess has a smooth contour.

20. The swab applicator of claim **13**, wherein the fracture recess is a score line cut into the closed package.

21. The swab applicator of claim **13**, wherein the closed package is a one-piece dip-molded package.

22. A swab applicator comprising:

a firs tubular portion;

a second tubular portion having a smaller diameter than the first tubular portion;

a connection portion between and connected to the first and second tubular portions the first tubular portion, the

connection portion, and the second tubular portion being a one-piece dip-molded container;

closed interior defined at least by the first tubular portion, the connection portion, and the second tubular portion;

a swab contained within the closed interior, the swab having a handle connected to the second tubular portion and a head within the first tubular portion; and

a fracture recess extending from an exterior surface of the one-piece dip-molded container into a wall of the first tubular portion and being located at a portion of the container having a substantially constant inside diameter.

23. An applicator package comprising:

a closed package having an interior sealed from an exterior of the closed package, the closed package having a first inside diameter at one end portion which is greater than a second inside diameter at an opposite end portion, the closed package having an inside diameter transition portion between the end portions and a fracture recess on an exterior surface of the end portion having the greater diameter at a position spaced away from a junction between the end portion having the greater diameter and the transition portion; and

an applicator material positioned in the interior of the closed package at the end portion having the greater diameter.

24. The applicator package of claim **23**, wherein the applicator material comprises a swab contained within the interior of the closed package.

25. The applicator package of claim **23**, wherein the closed package has an elongated tubular shape and the fracture recess circumscribes at least a portion of the exterior surface of the closed package such that the interior is exposed for use when the closed package is opened along the fracture recess.

26. The applicator package of claim **23**, wherein the closed package is a dip-molded sleeve having opposite closed ends.

27. A swab applicator comprising:

a dip-molded closed package having a cylindrical package handle connected to a cylindrical swab head enclosure by a tapered section having a first end connected to the swab head enclosure and a second end connected to the package handle;

a swab contained within an interior of the closed package, the swab having a swab handle connected to the package handle and a swab head inside the swab head enclosure; and

a fracture recess extending from a, exterior surface of the swab head enclosure into a wall of the swab head enclosure and spaced away from the connection of the swab head enclosure to the tapered section.

28. The swab applicator of claim **27**, wherein the fracture recess is an exterior score line that circumscribes the swab head enclosure.

29. A method of opening a swab applicator having a closed package having a package handle connected to a swab head enclosure by a tapered section, a swab contained within an interior of the closed package, the swab having a swab handle connected to the package handle and a swab head inside the swab head enclosure, and a fracture recess extending into an exterior surface of the swab head enclosure, comprising the steps of:

bending the swab head enclosure at the exterior fracture recess;

opening the closed package by fracturing the swab head enclosure at the exterior fracture recess away from a junction between the swab head enclosure and the tapered section; and

exposing the swab head.

30. A method of opening a swab applicator having a closed package having a package handle connected to a swab head enclosure by a tapered section, a swab contained within an interior of the closed packages the swab having a swab handle connected to the package handle and a swab head inside the swab head enclosure, and a fracture recess extending into an exterior surface of the swab head enclosure, comprising the steps of:

squeezing the swab head enclosure at the exterior fracture recess;

opening the closed package by fracturing the swab head enclosure at the exterior fracture recess away from a junction between the swab head enclosure and the tapered section; and

exposing the swab head.

* * * * *

United States Patent [19]

Korteweg

[11] **Patent Number: 4,952,204**

[45] **Date of Patent: Aug. 28, 1990**

[54] **DRY HANDLE SWAB ASSEMBLY AND UNIT**

[75] Inventor: **Wayne Korteweg**, Ledyard, Conn.

[73] Assignee: **GAM-MED Packaging Corporation**, Antioch, Ill.

[21] Appl. No.: **230,511**

[22] Filed: **Aug. 10, 1988**

[51] **Int. Cl.**[5] **A61M 35/00**

[52] **U.S. Cl.** **604/1**; 128/759; 206/363

[58] **Field of Search** 604/1–3; 128/749, 759; 401/132, 196; 206/210, 363

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Primary Examiner—Stephen C. Pellegrino
Attorney, Agent, or Firm—Stephen Weiss

[57] **ABSTRACT**

A swab, and a substance to be applied thereby, are contained within a sleeve which can readily be opened by use of manual force. The sleeve provides a handle portion that conforms closely to that of the swab stick, thus offering a secure and natural grip for manipulation of the swab while, at the same time, minimizing the amount of the contained substance that can seep along the length of stick, and an element of the sleeve that remains after opening of the unit also serves a protective function. Because of the form of the sleeve it is easy and inexpensive to fabricate as a fully functional article, using only an internal mold member, and it lends itself to facile assembly with the swab.

23 Claims, 3 Drawing Sheets

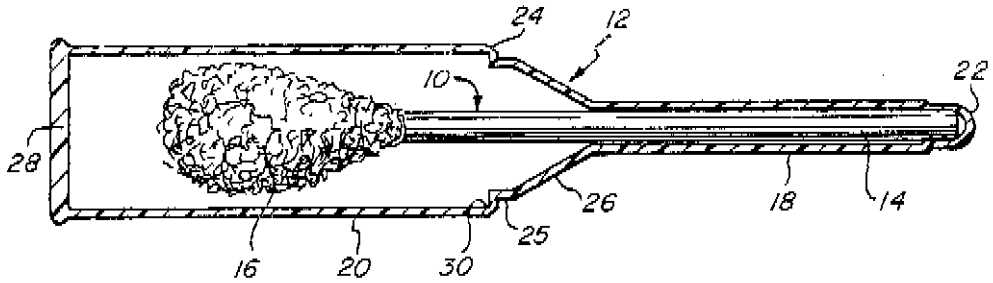

EXHIBIT B

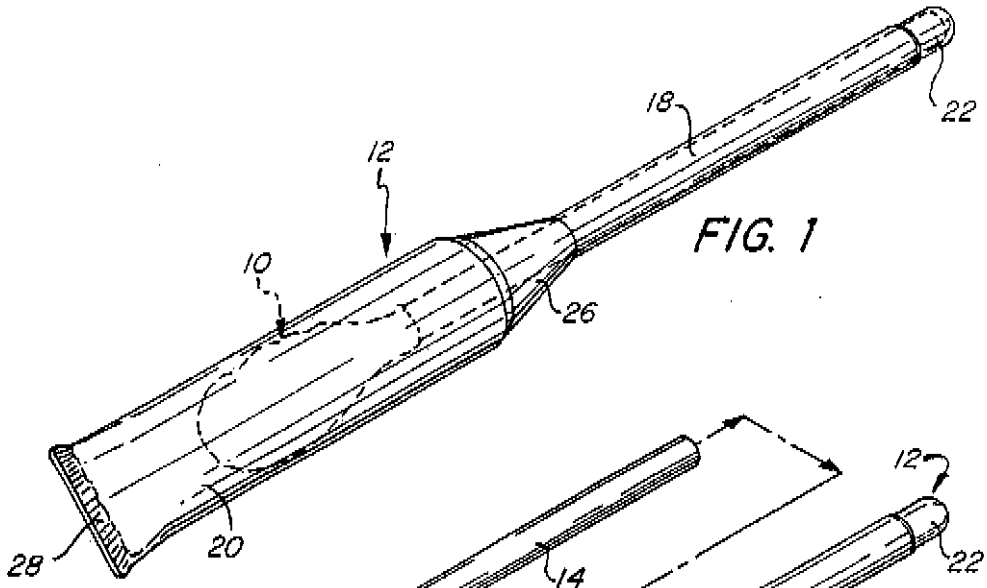

FIG. 1

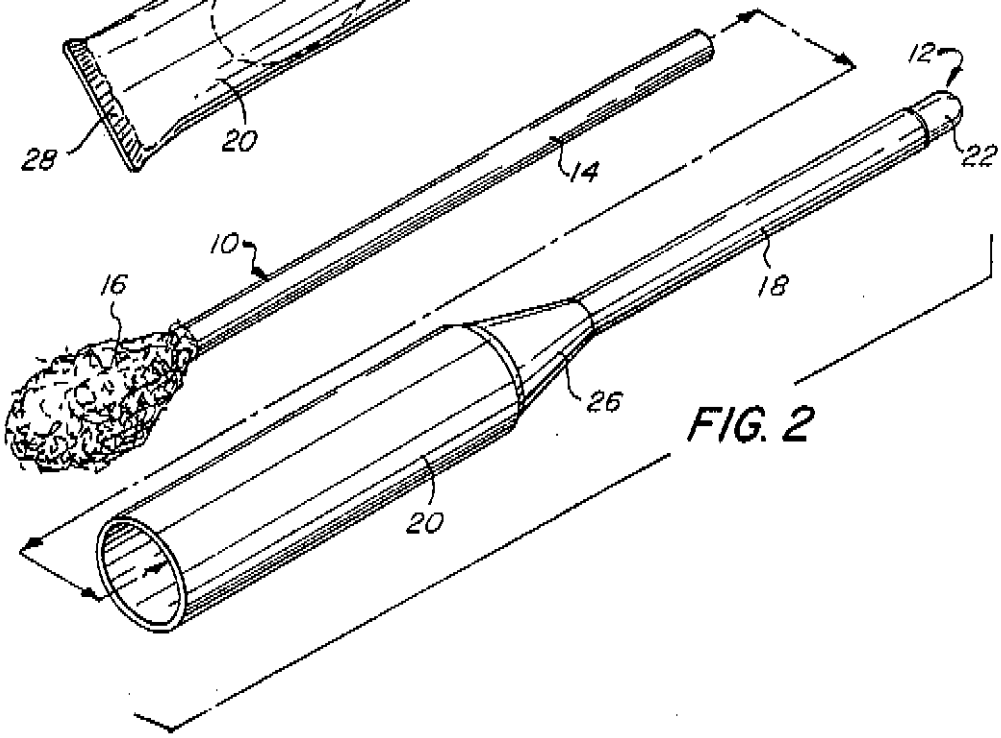

FIG. 2

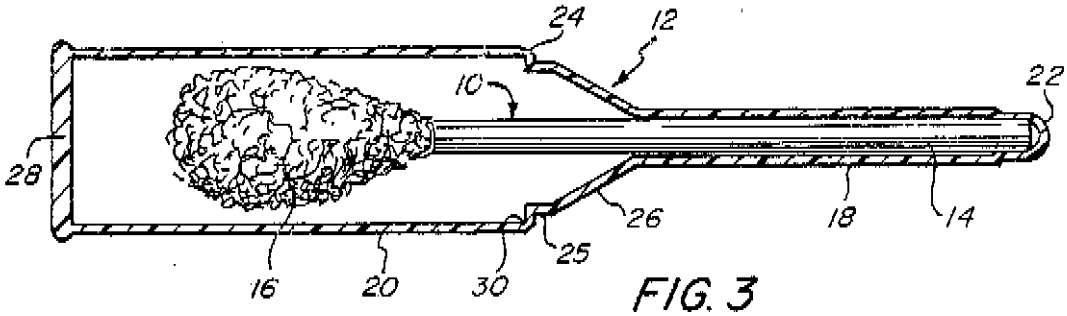

FIG. 3

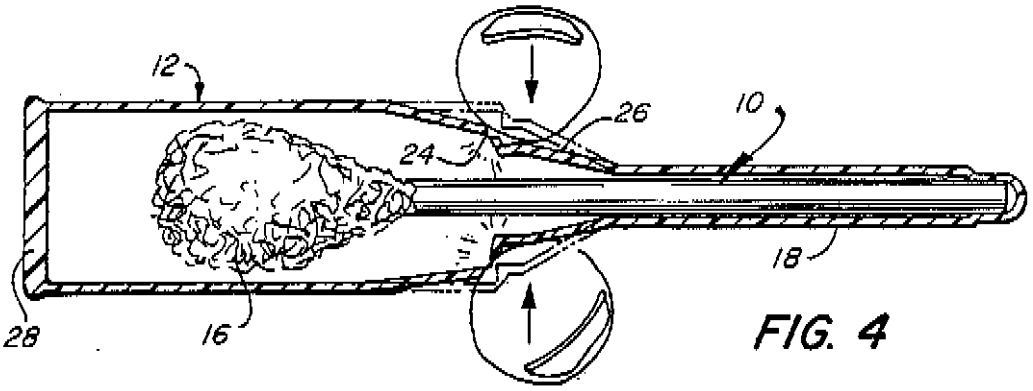

FIG. 4

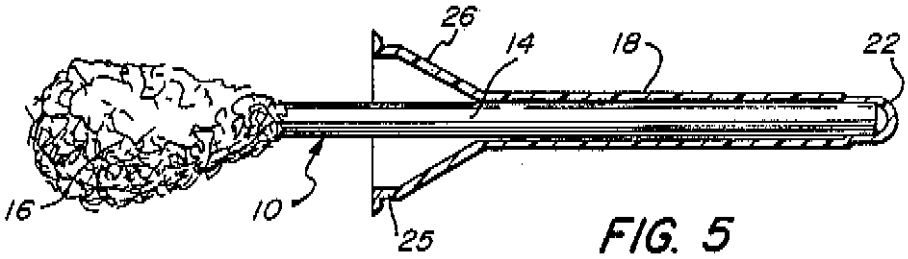

FIG. 5

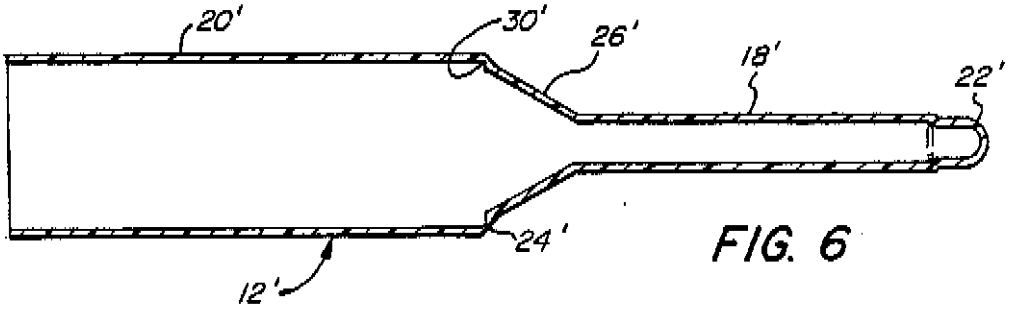

FIG. 6

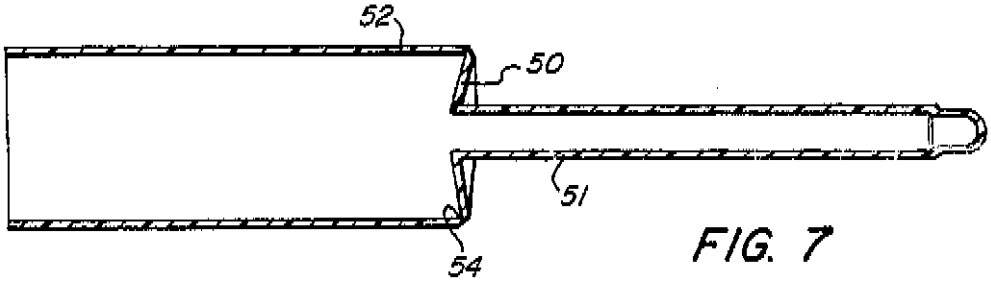

FIG. 7

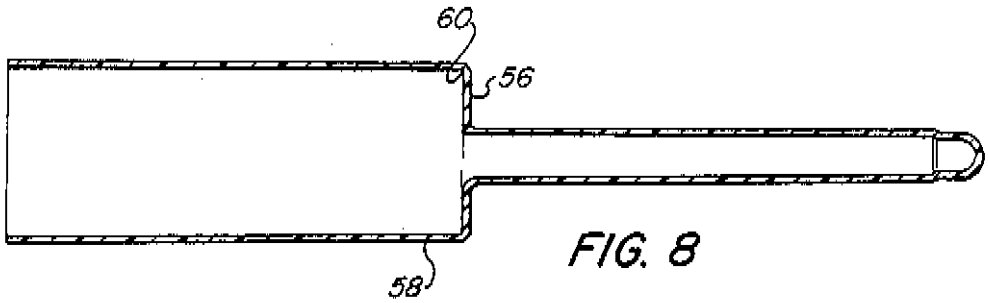

FIG. 8

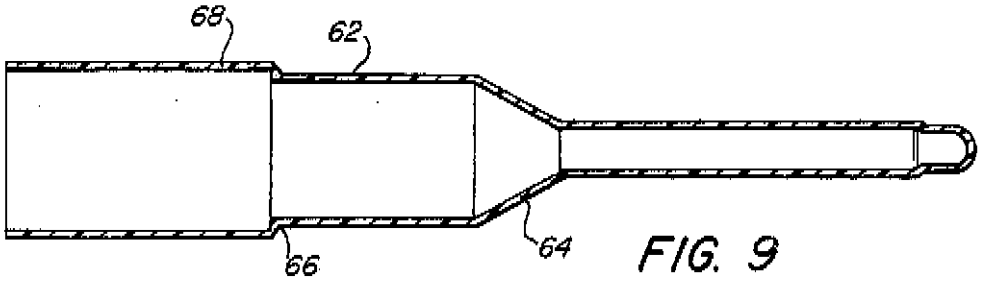

FIG. 9

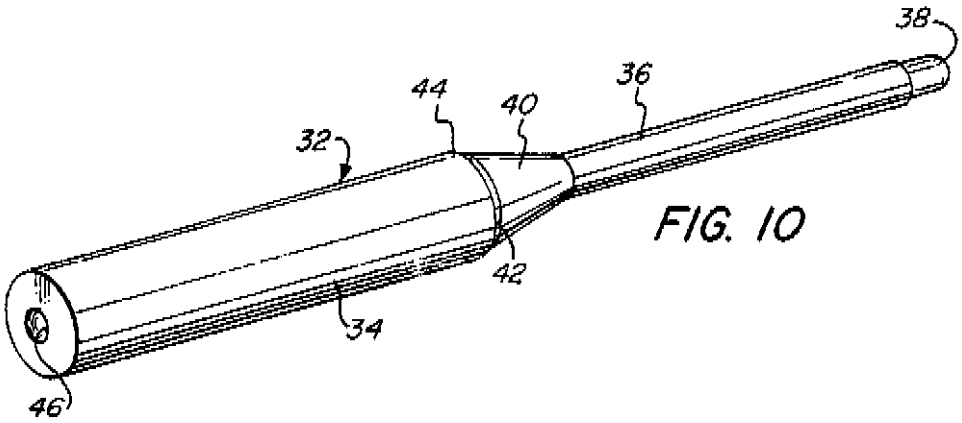

FIG. 10

DRY HANDLE SWAB ASSEMBLY AND UNIT

BACKGROUND OF THE INVENTION

Swabs, consisting of a stick-like handle and a bud of cotton or other absorbent or porous material at one end, are of course in widespread use, particularly as applicators for medicinal, cleaning, and cosmetic liquids. A demand exists for a self-contained unit consisting of a swab prepackaged with the substance for which it is to be used, due to the convenience and sanitation benefits that are afforded thereby.

Swabs and the like in closed containers have heretofore been provided, in some instances also including a liquid substance. For example, Doherty U.S. Pat. No. 2,902,146, issued Sept. 1, 1959, provides a sterile package in which a surgical swab, contained in an interior sac, is sealed within a casing. Monaghan U.S. Pat. No. 3,776,220, issued Dec. 4, 1973, provides a unit in which a diagnostic swab and a culture medium are both contained within different sections of the same plastic tube, the two sections being separated by a frangible seal.

Swab-like implements enclosed within various forms of containers are also disclosed in Robert U.S. Pat. No. 1,146,522, issued July 13, 1915, Sheely U.S. Pat. No. 1,573,648, issued Feb. 16, 1926, Cohen U.S. Pat. No. 3,163,160, issued Dec. 29, 1964, Kalayjian U.S. Pat. No. 3,513,830, issued May 26, 1970, and Davis U.S. Pat. No. 3,640,268, issued Feb. 8, 1972. Various forms of applicators, associated with supply reservoirs, are shown in Higgins U.S. Pat. No. 1,166,761, issued Jan. 4, 1916, Schulz U.S. Pat. No. 1,221,227, issued Apr. 3, 1917, Hollister U.S. Pat. No. 1,309,201, issued July 8, 1919, Schwartzman U.S. Pat. No. 3,614,245, issued Oct. 19, 1971, Truhan U.S. Pat. No. 3,759,259, issued Sept. 18, 1973, Schwartzman U.S. Pat. No. 3,774,609, issued Nov. 27, 1973, D'Alessandro et al U.S. Pat. No. 3,847,151, issued Nov. 12, 1974, Bennington U.S. Pat. No. 3,958,571, issued May 25, 1976 and Snyder et al U.S. Pat. No. 4,432,749, issued Feb. 21, 1984.

Despite the level of activity in the art evidenced by the foregoing, a need exists for a prepackaged unit, including an enclosed swab and a substance for application, which is neat and convenient to handle and use, and relatively facile, simple and inexpensive to produce.

Accordingly, it is the broad object of the present invention to provide a novel unit, including a swab and a substance contained within a plastic sleeve, and to provide a novel sleeve and swab assembly for producing the same, which is neat and convenient to handle and use, and relatively facile, simple and inexpensive to produce.

It is a more specific object of the invention to provide such a unit and assembly wherein the sleeve provides an enclosure that is secure but nevertheless readily opened by manual force, and that also provides an integral element for shielding the user's hand from the contained substance and for curbing contact of the area being treated.

Another more specific object is to provide such a unit and assembly in which the sleeve is constructed to afford a secure and natural-feeling grip, for manipulation of the assembled swab, and to show evidence of tampering.

SUMMARY OF THE INVENTION

It has now been found that certain of the foregoing and related objects of the invention are attained by the provision of a sealable assembly comprising a swab having an elongated, small diameter stick with an applicator element at one end thereof, and an elongated, thin-wall hollow sleeve assembled with the swab. The sleeve is integrally formed, as a single piece, from a relatively rigid plastic material that is manually compressible and severable in thin sections, and it has a handle portion at one end, a receptacle portion at the other end, and a transition portion therebetween. The handle portion, which includes an element that frictionally engages the free end of the stick, extends along a major part of its length. It conforms generally to the stick, but is spaced slightly from the surface thereof throughout most of the coextensive length, to provide sufficient clearance for facile assembly while minimizing the gap therebetween. The cross section of the receptacle portion is substantially larger than is that of the handle portion of the sleeve, and the adjacent components at the intersection between the receptacle and transition portions are so configured that compression of the sleeve thereat will create a significant level of stress, thereby facilitating manual severance of the sleeve. Because of the relative lengths of the stick and the handle portion, the applicator element of the swab will be contained, at least substantially, within the receptacle portion of the sleeve.

In the preferred embodiments, the component of the transition portion that is disposed at the intersection with the receptacle portion will be of substantially annular configuration, and most desirably the adjacent components at the intersection will either be mutually perpendicular or disposed with an acute interior angle between them. In especially preferred embodiments, the transition portion will be of compound configuration and will include a cylindrical component directly adjacent the annular component.

Generally, the receptacle portion of the sleeve will be cylindrical and will have a diameter that is more than about triple that of the handle portion thereof; a short tip component at the free end of the handle portion, of smaller diameter than the remainder thereof, will advantageously provide the stick-engaging element. Typically, the swab will be about 11 centimeters in length; the sleeve handle portion will be about 6 centimeters long and less than about 0.5 centimeter in diameter, and its receptacle portion and an adjacent cylindrical component of the transition portion thereof will have diameters of about 1.3 and 1.15 centimeters, respectively, with the cylindrical component being at least about 0.13 centimeter long. When the plastic material employed for fabrication of the sleeve is polypropylene, it will desirably have a substantially uniform thickness of approximately 0.3 millimeter.

Other objects of the invention are attained by the provision of a swab or applicator unit, including an applicator assembly as hereinabove described, and a contained substance. The substance will normally be a liquid, and it will be confined substantially within the receptacle and transition portions of the sleeve, the latter being closed at the free end of its receptacle portion for that purpose.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a self-contained swab unit embodying the present invention, the enclosed swab being shown in dotted line;

FIG. 2 is an exploded perspective view showing the swab and sleeve of the assembly of which the unit of FIG. 1 is comprised;

FIG. 3 is an elevational view of the unit of FIG. 1, with the sleeve shown in section;

FIG. 4 is a view similar to FIG. 3, showing the sleeve being fractured under manual pressure;

FIG. 5 is a view similar to FIG. 4, showing the receptacle portion of the sleeve removed;

FIGS. 6–9 are sectional views showing other forms of sleeves suitable for use in the assembly and unit of the invention; and

FIG. 10 is a perspective view showing a mold member suitable for use in producing the sleeve of FIGS. 1–5.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

Turning now in detail to FIGS. 1–4 of the appended drawings, therein illustrated is a self-contained swab unit embodying the invention, and consisting of a swab, generally designated by the numeral 10, and a sleeve generally designated by the numeral 12. The swab 10 consists of a straight hollow plastic stick 14, with a bud 16 of cotton attached on one end.

The sleeve 12 is of circular cross section and hollow along its entire length, and is fabricated from a plastic material. It consists of a relatively small diameter cylindrical handle portion 18 at one end, a substantially larger diameter receptacle portion 20 at the opposite end, and a transition portion of compound configuration therebetween. The tip element 22 on the handle portion 18 has a diameter slightly reduced from that of the remainder of the handle portion, and serves to frictionally engage the tip of the swab stick 14.

As will be appreciated from FIG. 2, the assembly is produced simply by inserting the swab 10 into the sleeve 12 sufficiently to enable the element 22 to frictionally engage the stick 14, whereupon the bud 16 will reside within the enlarged receptacle portion 20. It will also be noted that the handle portion 18 conforms closely to the stick 14, albeit with a small gap (typically of about one millimeter) between their confronting surfaces throughout most of their coextensive lengths, to facilitate insertion of the swab. After assembly, the sleeve will normally be at least partially filled with a medicinal, cosmetic, or like substance, following which the sleeve will be closed, such as by a heat seal 28, to produce a sanitary, integral unit.

Access to the swab is gained simply by squeezing the sleeve at the intersection between its receptacle and transition portions, as indicated in FIG. 4. The transition portion is uniquely configured to coact with the receptacle portion, so as to enable ready fracture under the influence of such force. In addition to affording access, this characteristic will provide a tamper-resisting feature to the package, since any loss of integrity will tend to be evident as cracking, crazing, or opacity at stress points.

The transition portion consists, more particularly, of a narrow annular component 24, a short cylindrical component 25, and a frustoconical component 26, the latter merging into the handle portion 18. The annular component 24 in turn connects to the receptacle portion 20, with the adjacent components forming a sharp interior right angle intersection at 30. As will be noted, however, the corresponding exterior corner is not sharply defined, but rather is more in the nature of a rounded chamfer. This results from material flow, and is a natural consequence of the preferred molding method and tooling structure employed, as will be described more fully hereinbelow.

In any event, the interior and exterior configurations together result in a minimum thickness of material at the intersection 30. Depending upon the nature of the material used to fabricate the sleeve, the stress created by compression (which arises because the adjacent components are incapable of assuming a compatible configuration upon flattening of the sleeve) will either cause it to snap at the intersection 30, or will at least crack or otherwise facilitate severance by a tearing action. As is seen in FIG. 5, the swab 10 is exposed for use upon removal of the receptacle portion.

The close conformity of the handle portion 18 of the sleeve to the stick 14 of the swab affords a secure and natural-feeling grip while, at the same time, minimizing the gap into which the contained substance can seep. The frustoconical component 26 of the transition portion, which remains after removal of the receptacle portion, provides means for limiting the location at which the assembly can be grasped, thus helping to prevent inadvertent touching of the area being treated, and it also serves to contain any of the substance that might drip, or run down the swab stick.

For best results, it has been found that a sleeve having dimensions such as those typified hereinabove will be fabricated from polypropylene, in a thickness of about 0.3 millimeter. This will afford a level of rigidity that will provide good handling and structural features while, at the same time, tending to produce fracture upon manual compression at the frangible joint.

The preferred manner of producing the sleeve 12 is by fusion molding, utilizing a mold member such as that illustrated in FIG. 10 and generally designated by the numeral 32. Indeed, the sleeves hereof are specifically configured so as to permit fabrication (as fully functional articles) with such a mold member by that technique, and without need for any external tooling.

Since the configuration of the mold member must obviously match that of the sleeve, it need not be discussed in great detail. Suffice to say that it is desirably made of cold finished steel bar stock, polished to remove imperfections, and that it has a body portion 34, a handle portion 36 (with a reduced diameter tip element 38 thereon) and a transition portion therebetween consisting of a frustoconical component 40, a cylindrical component 42, and an annular component (not visible in this figure) spaced from the frustoconical component 40. It is important to note that the edge 44 adjacent to which the annular component lies is sharp and well defined, so as to produce the necessary desired degree of internal sharpness at the intersection 30, while at the same time inducing the material flow that will result in desired thinning thereat. A threaded bore 46 is provided in the larger end of the mold member, for mounting purposes.

As will be appreciated, to produce the sleeve the mold member 32 is heated to a temperature sufficient to provide the thermal energy necessary to melt the polymer, employed in finely divided particulate form. After solidification of the fused resin, it is merely a matter of stripping the article from the mold member; appropriate slight tapers built into the mold member, and other conventional practices for facilitating stripping, are known to those skilled in the art and may be employed as appropriate. It is of course necessary that no element

of the mold member (and correspondingly, of the sleeve produced) be of greater extent, in a plane transverse to its longitudinal axis, than is any other element spaced further from the tip, since that would render stripping from the mold impossible, particularly in view of the degree of rigidity that the sleeve is to have for facile manual severance.

In this regard it must of course be appreciated that, if the plastic used is excessively rigid and brittle, the possibility of inadvertent fracture will exist. Furthermore, the resin must have a sufficiently low melt viscosity to permit coverage of all mold surfaces, and it must produce a nonporous and pinhole-free structure. Within the foregoing constraints, any of a variety of synthetic resinous materials may be utilized, and the selection thereof will be evident to those skilled in the art; nevertheless, exemplary thermoplastic resins that might be suggested are polypropylene, high density polyethylene, rigid polyvinyl chloride, and nylon, of which polypropylene will usually be preferred.

The swab assembly will normally be employed for the application of liquids to the body (e.g., for medicinal, disinfectant, cosmetic and cleaning purposes); however, the contained substance could as well be a powder, and a wide variety of nonpersonal applications, such as for application of lubricating oil to a mechanism, may occur to those skilled in the art. As used herein, therefore, the term "applicator" is to be broadly construed to include, for example, elements used primarily for removal of matter, as when the swab performs a cleaning function.

The range of sizes for the assembly and its components can also vary widely (e.g., the swab can be from about 3 to 15 centimeters in length, and the receptacle portion of the sleeve can be much longer or much shorter than the handle portion), as long as the wall thicknesses are controlled appropriately to afford the desired functional characteristics, as discussed herein. It is also important, for proper functioning (at least when the sleeve is of 0.3 millimeter thick polypropylene) that the component intersecting with the receptacle portion (e.g., the annular component **24** in the embodiment of FIGS. **1–5**) be at least about 0.13 centimeter wide, to create adequate stress at the fracture point(s).

Turning now to FIG. **6**, the sleeve illustrated is virtually the same as sleeve **12**, except that its transition portion omits the short cylindrical component **25**; primed numerals are therefore employed.

The transition portion of the sleeve of FIG. **7** is similar, but consists of an annular component **50** extending directly between the handle portion **51** and the end component **52** of the receptacle portion. In addition, the annular component **50** is disposed so as to form an acute interior angle with the component **52**, thereby producing an intersection at **54** that is even sharper, internally, than is the intersection **30** of the sleeve embodiment of the earlier Figures.

The sleeve of FIG. **8** is the same as that of FIG. **7**, except that its annular component **56** forms a right-angle with the adjacent receptacle portion component **58**, and a corresponding intersection at **60**.

The form of sleeve shown in FIG. **9** is again similar to that of FIGS. **1–5**, with the exception however that a relatively long cylindrical component **62** is interposed between the frustoconical component **64** and the annular component **66**. Annular component **66** cooperates with components **62** and adjacent component **68** on the end of the receptacle portion in a manner that is wholly equivalent to the opening function cooperatively produced by the operative elements of the initially described embodiment.

It will of course be appreciated that mold members comparable to that of FIG. **10**, but suitably modified, will preferably be used to produce the sleeves of FIGS. **6–9**.

Thus, it can be seen that the present invention provides a novel unit, including a swab and a substance contained within a plastic sleeve, and a sleeve and swab assembly for producing the same, which is neat and convenient to handle and use, and is relatively facile, simple and inexpensive to produce. The sleeve provides an enclosure that is secure, but nevertheless readily opened by manual force, and it also provides an integral element for shielding the user's hand from the contained substance and for curbing contact with the area being treated; in addition, its construction affords a secure and natural-feeling grip for manipulation of the assembled swab.

Having described the invention, what is claimed is:

1. A sealable, manually openable applicator assembly comprising: a swab having an elongated, small diameter stick with an applicator element at one end thereof; and an elongated, thin-wall hollow sleeve assembled with said swab, said sleeve being integrally formed as a single piece from a relatively rigid plastic material that is manually compressible and severable in thin sections, and having a handle portion at one end, a receptacle portion at the other end, and a transition portion therebetween, said handle portion having an element frictionally engaging the other end of said stick, and said handle portion extending along a substantial part of the length of, and conforming to, said stick and being spaced slightly from the surface thereof, other than at said engaging element, to provide sufficient clearance for facile assembly while minimizing the gap therebetween, said receptacle portion being of substantially larger cross section than said handle portion, and the adjacent components of said receptacle and transition portions at the intersection therebetween cooperatively constituting means for creating stress in said sleeve, said adjacent components being so relatively configured as to assume incompatible configurations upon flattening of said sleeve, to thereby create a significant level of stress therebetween, compression of said sleeve thereat thereby facilitating manual severance of said sleeve at that location, the relative lengths of said stick and said handle portion being such that said applicator element of said swab is contained at least substantially within said receptacle portion of said sleeve.

2. The assembly of claim **1** wherein said component of said transition portion is of substantially annular configuration.

3. The assembly of claim **2** wherein said adjacent components are mutually perpendicular.

4. The assembly of claim **3** wherein said transition portion is of compound configuration, and includes a cylindrical component directly adjacent said substantially annular component.

5. The assembly of claim **4** wherein said receptacle portion is cylindrical, and wherein said receptacle portion and said cylindrical component of said transition portion have diameters of about 1.3 and 1.15 centimeters, respectively.

6. The assembly of claim **5** wherein the thickness of said sleeve wall has a substantially uniform value of approximately 0.3 millimeter, wherein said handle por-

tion of said sleeve has a diameter of less than about 0.5 centimeter, and wherein said clearance has a value of less than about one millimeter.

7. The assembly of claim 6 wherein said handle portion and said stick are about 6 and 11 centimeters in length, respectively.

8. The assembly of claim 4 wherein said transition portion additionally includes a frustoconical component directly adjacent said cylindrical component and joined directly to said handle portion.

9. The assembly of claim 2 wherein said adjacent components are disposed with an acute interior angle therebetween.

10. The assembly of claim 2 wherein said receptacle portion of said sleeve is of cylindrical configuration, and wherein said component of said transition portion is at least 0.13 centimeter wide.

11. The assembly of claim 10 wherein the diameter of said handle portion of said sleeve is less than about one-third the diameter of said receptacle portion thereof, and wherein said handle portion is coextensive with said stick along a major part of the length of said stick.

12. The assembly of claim 11 wherein said handle portion diameter is less than about 0.5 centimeter.

13. The assembly of claim 12 wherein said receptacle portion diameter is about 1.3 centimeters.

14. The assembly of claim 1 wherein said handle portion has a short tip component at its free end, which is of slightly smaller diameter than is the remainder thereof and which provides said engaging element.

15. The assembly of claim 1 wherein the thickness of said sleeve wall has a substantially uniform value of approximately 0.3 millimeter, and wherein said plastic material is polypropylene.

16. The assembly of claim 1 wherein said sleeve is closed at said one end and open at said other end, and wherein no element that is closer to said one end than is any other element is of larger cross-sectional dimension than said other element.

17. An applicator unit for a substance, including:

a swab having an elongated, small diameter stick with an applicator element at one end thereof;

an elongated, thin-wall hollow sleeve assembled with said swab, said sleeve being integrally formed as a single piece from a relatively rigid plastic material that is manually compressible and severable in thin sections, and having a handle portion at one end, a receptacle portion at the other end, and a transition portion therebetween, said handle portion having an element frictionally engaging the other end of said stick, and said handle portion extending along a substantial part of the length of, and conforming to, said stick and being spaced slightly from the surface thereof, other than at said engaging element, to provide sufficient clearance for facile assembly while minimizing the gap therebetween, said receptacle portion being of substantially larger cross section than said handle portion, and the adjacent components of said receptacle and transition portions at the intersection therebetween cooperatively constituting means for creating stress in said sleeve, said adjacent components being so relatively configured as to assume incompatible configurations upon flattening of said sleeve, to thereby create a significant level of stress therebetween, compression of said sleeve thereat thereby facilitating manual severance of said sleeve at that location, the relative lengths of said stick and said handle portion being such that said applicator element of said swab is contained at least substantially within said receptacle portion of said sleeve; and

a substance contained within said receptacle and transition portions of said sleeve, said sleeve being closed at the free end of said receptacle portion thereof.

18. The unit of claim 17 wherein said receptacle portion of said sleeve is of cylindrical configuration, wherein said transition portion is of compound configuration and includes a substantially annular component and a cylindrical component directly adjacent thereto, and wherein said adjacent components are mutually perpendicular or are disposed with an acute interior angle between them.

19. The unit of claim 18 wherein said receptacle portion and said cylindrical component of said transition portion have diameters of about 1.3 and 1.15 centimeters, respectively, and wherein the thickness of said sleeve wall has a substantially uniform value of approximately 0.3 millimeter.

20. The unit of claim 19 wherein said handle portion of said sleeve has a short tip component at its free end, which is of slightly smaller diameter than is the remainder thereof and which provides said engaging element, and wherein no element of said sleeve that is closer to said one end than is any other element thereof is of larger cross-sectional dimension than said other element.

21. The assembly of claim 19 wherein said handle portion diameter is less than about 0.5 centimeter, wherein said clearance has a value of about one millimeter, and wherein said substance is of liquid form.

22. The assembly of claim 21 wherein said receptacle portion diameter is about 1.3 centimeters, wherein said handle portion and stick are about 6 and 11 centimeters in length, respectively, and wherein said handle portion is coextensive with said stick along a major part of the length of said stick.

23. The assembly of claim 17 wherein the thickness of said sleeve wall has a substantially uniform value of approximately 0.3 millimeter, wherein said plastic material is polypropylene, and wherein said component of said transition portion is at least about 0.13 centimeter wide.

* * * * *

JS 44
(Rev. 12/96)

CIVIL COVER SHEET

The JS-44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON THE REVERSE OF THE FORM.)

JUDGE JOHN W DARRAH

I. (a) PLAINTIFFS

Viridian Packaging Solutions, LLC.
760 Lakeside Drive, Suite D
Gurnee, IL 60031

DEFENDANTS

Zila, Inc.
5227 N. 7th Street, Phoenix, AZ 85014-2800
Zila Swab Technologies, Inc.
712 Anita Ave., Antioch, IL 60002

(b) COUNTY OF RESIDENCE OF FIRST LISTED PLAINTIFF Lake
(EXCEPT IN U.S. PLAINTIFF CASES)

COUNTY OF RESIDENCE OF FIRST LISTED DEFENDANT
(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

MAGISTRATE JUDGE MASON

(c) ATTORNEYS (FIRM NAME, ADDRESS, AND TELEPHONE NUMBER)
Alan L. Barry, Bell, Boyd & LLoyd, LLC
70 W. Madison Street, 3300
Chicago, IL 60602
(312)372-1121

ATTORNEYS (IF KNOWN)

03C 3285

II. BASIS OF JURISDICTION (PLACE AN "X" IN ONE BOX ONLY)

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

DOCKETED
MAY 19 2003

III. CITIZENSHIP OF PRINCIPAL PARTIES (For Diversity Cases Only) (PLACE AN "X" IN ONE BOX FOR PLAINTIFF AND ONE BOX FOR DEFENDANT)

	PTF	DEF		PTF	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated or Principal Place of Business In This State	☐ 4	☐ 4
Citizen of Another State	☐ 2	☐ 2	Incorporated *and* Principal Place of Business In Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. ORIGIN (PLACE AN "X" IN ONE BOX ONLY)

- ☒ 1 Original Proceeding
- ☐ 2 Removed from State Court
- ☐ 3 Remanded from Appellate Court
- ☐ 4 Reinstated or Reopened
- ☐ 5 Transferred from another district (specify)
- ☐ 6 Multidistrict Litigation
- ☐ 7 Appeal to District Judge from Magistrate Judgment

V. NATURE OF SUIT (PLACE AN "X" IN ONE BOX ONLY)

CONTRACT
- ☐ 110 Insurance
- ☐ 120 Marine
- ☐ 130 Miller Act
- ☐ 140 Negotiable Instrument
- ☐ 150 Recovery of Overpayment & Enforcement of Judgment
- ☐ 151 Medicare Act
- ☐ 152 Recovery of Defaulted Student Loans (Excl. Veterans)
- ☐ 153 Recovery of Overpayment of Veteran's Benefits
- ☐ 160 Stockholders' Suits
- ☐ 190 Other Contract
- ☐ 195 Contract Product Liability

REAL PROPERTY
- ☐ 210 Land Condemnation
- ☐ 220 Foreclosure
- ☐ 230 Rent Lease & Ejectment
- ☐ 240 Torts to Land
- ☐ 245 Tort Product Liability
- ☐ 290 All Other Real Property

TORTS

PERSONAL INJURY
- ☐ 310 Airplane
- ☐ 315 Airplane Product Liability
- ☐ 320 Assault, Libel & Slander
- ☐ 330 Federal Employers' Liability
- ☐ 340 Marine
- ☐ 345 Marine Product Liability
- ☐ 350 Motor Vehicle
- ☐ 355 Motor Vehicle Product Liability
- ☐ 360 Other Personal Injury

PERSONAL INJURY
- ☐ 362 Personal Injury – Med. Malpractice
- ☐ 365 Personal Injury – Product Liability
- ☐ 368 Asbestos Personal Injury Product Liability

PERSONAL PROPERTY
- ☐ 370 Other Fraud
- ☐ 371 Truth in Lending
- ☐ 380 Other Personal Property Damage
- ☐ 385 Property Damage Product Liability

CIVIL RIGHTS
- ☐ 441 Voting
- ☐ 442 Employment
- ☐ 443 Housing/ Accommodations
- ☐ 444 Welfare
- ☐ 440 Other Civil Rights

PRISONER PETITIONS
- ☐ 510 Motions to Vacate Sentence

HABEAS CORPUS:
- ☐ 530 General
- ☐ 535 Death Penalty
- ☐ 540 Mandamus & Other
- ☐ 550 Civil Rights
- ☐ 555 Prison Condition

FORFEITURE/PENALTY
- ☐ 610 Agriculture
- ☐ 620 Other Food & Drug
- ☐ 625 Drug Related Seizure of Property 21 USC 881
- ☐ 630 Liquor Laws
- ☐ 640 R.R. & Truck
- ☐ 650 Airline Regs.
- ☐ 660 Occupational Safety/Health
- ☐ 690 Other

LABOR
- ☐ 710 Fair Labor Standards Act
- ☐ 720 Labor/Mgmt. Relations
- ☐ 730 Labor/Mgmt. Reporting & Disclosure Act
- ☐ 740 Railway Labor Act
- ☐ 790 Other Labor Litigation
- ☐ 791 Empl. Ret. Inc. Security Act

BANKRUPTCY
- ☐ 422 Appeal 28 USC 158
- ☐ 423 Withdrawal 28 USC 157

PROPERTY RIGHTS
- ☐ 820 Copyrights
- ☒ 830 Patent
- ☐ 840 Trademark

SOCIAL SECURITY
- ☐ 861 HIA (1395ff)
- ☐ 862 Black Lung (923)
- ☐ 863 DIWC/DIWW (405(g))
- ☐ 864 SSID Title XVI
- ☐ 865 RSI (405(g))

FEDERAL TAX SUITS
- ☐ 870 Taxes (U.S. Plaintiff or Defendant)
- ☐ 871 IRS – Third Party 26 USC 7609

OTHER STATUTES
- ☐ 400 State Reapportionment
- ☐ 410 Antitrust
- ☐ 430 Banks and Banking
- ☐ 450 Commerce/ICC Rates/etc.
- ☐ 460 Deportation
- ☐ 470 Racketeer Influenced and Corrupt Organizations
- ☐ 810 Selective Service
- ☐ 850 Securities/Commodities/ Exchange
- ☐ 875 Customer Challenge 12 USC 3410
- ☐ 891 Agricultural Acts
- ☐ 892 Economic Stabilization Act
- ☐ 893 Environmental Matters
- ☐ 894 Energy Allocation Act
- ☐ 895 Freedom of Information Act
- ☐ 900 Appeal of Fee Determination Under Equal Access to Justice
- ☐ 950 Constitutionality of State Statutes
- ☐ 890 Other Statutory Actions

VI. CAUSE OF ACTION (CITE THE U.S. CIVIL STATUTE UNDER WHICH YOU ARE FILING AND WRITE BRIEF STATEMENT OF CAUSE. DO NOT CITE JURISDICTIONAL STATUTES UNLESS DIVERSITY.)

Non-infringement and invalidity under 35 U.S.C. § 271

VII. REQUESTED IN COMPLAINT

☐ CHECK IF THIS IS A CLASS ACTION UNDER F.R.C.P. 23

DEMAND $

CHECK YES only if demanded in complaint:
JURY DEMAND: ☒ YES ☐ NO

VIII. This case ☒ is not a refiling of a previously dismissed action.

☐ is a refiling of case number _____, previously dismissed by Judge _____

DATE 5/16/03

SIGNATURE OF ATTORNEY OF RECORD Alan L Barry

UNITED STATES DISTRICT COURT

ATTACHMENT

1(c) ATTORNEYS (FIRM NAME, ADDRESS, AND TELEPHONE NUMBER)

John M. Drews
Drews & Associates, P.C.
1900 Spring Road-STE 200
Oak Brook, IL 60523
630-954-2875