



(19) **United States**  
(12) **Patent Application Publication**  
**Wolfe et al.**

(10) **Pub. No.: US 2012/0087711 A1**  
(43) **Pub. Date: Apr. 12, 2012**

(54) **SQUEEZE APPLICATOR**

(52) **U.S. Cl. .... 401/132; 401/288**

(76) Inventors: **Bart Wolfe**, Port Washington, NY (US); **J.K. Hwang**, Seoul (KR)

(57) **ABSTRACT**

(21) Appl. No.: **13/267,587**

(22) Filed: **Oct. 6, 2011**

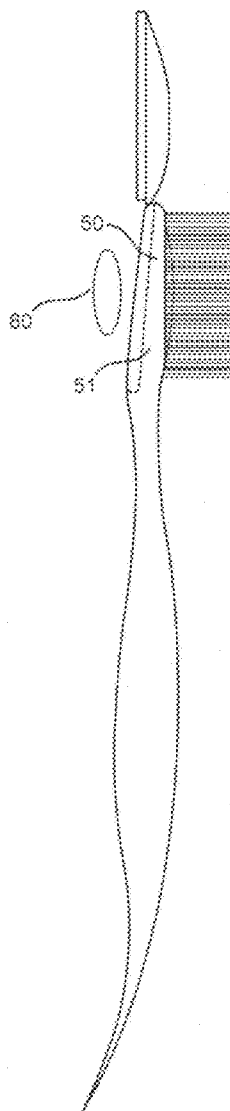
A squeeze applicator comprises a handle transitioning into a head, with a cavity therein being fillable with a dispensable substance. One side of the head has bristles and orifices into the cavity. A resilient pivotally-mounted cover may enclose the cavity. The orifices may be sized in direct proportion to the substance's viscosity and to a desired speed for dispensing. A flexible material may block each orifice, except for a lengthwise slit, to inhibit substance outflow until pressure is applied to the cover. A plurality of lateral slits may be added to form finger like members being normally biased to seal the orifice. Foil may also cover the orifices until dispensing occurs, where the foil ruptures to uncover the orifices. Spiked members on the cover portion may protrude in toward the cavity when the cover is closed, to more easily pierce the foil when pressure is applied to the bulbous cover.

**Related U.S. Application Data**

(60) Provisional application No. 61/404,700, filed on Oct. 7, 2010.

**Publication Classification**

(51) **Int. Cl.**  
**A46B 11/02** (2006.01)



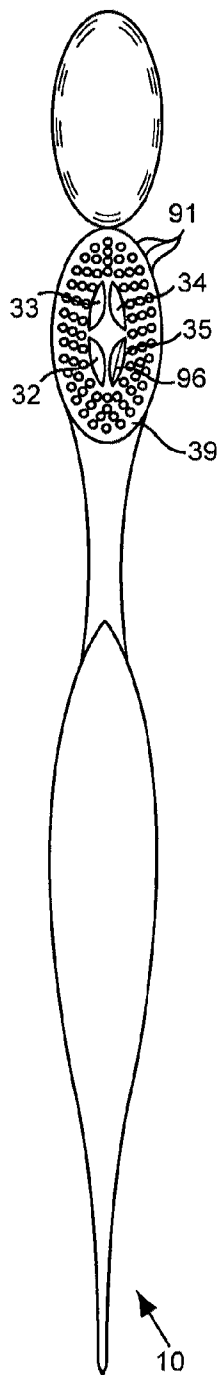


FIG. 1

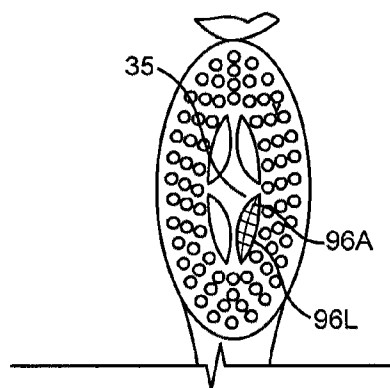


FIG. 1A

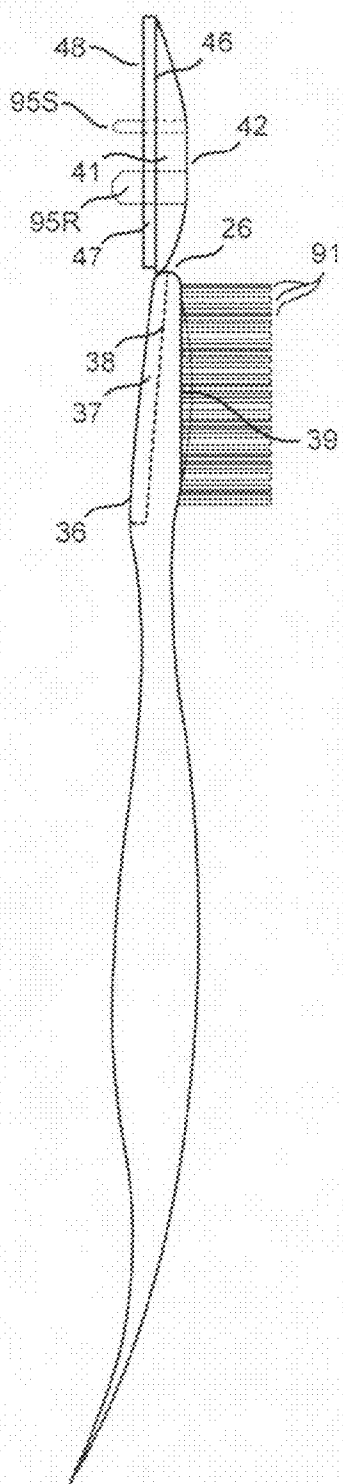


FIG. 2

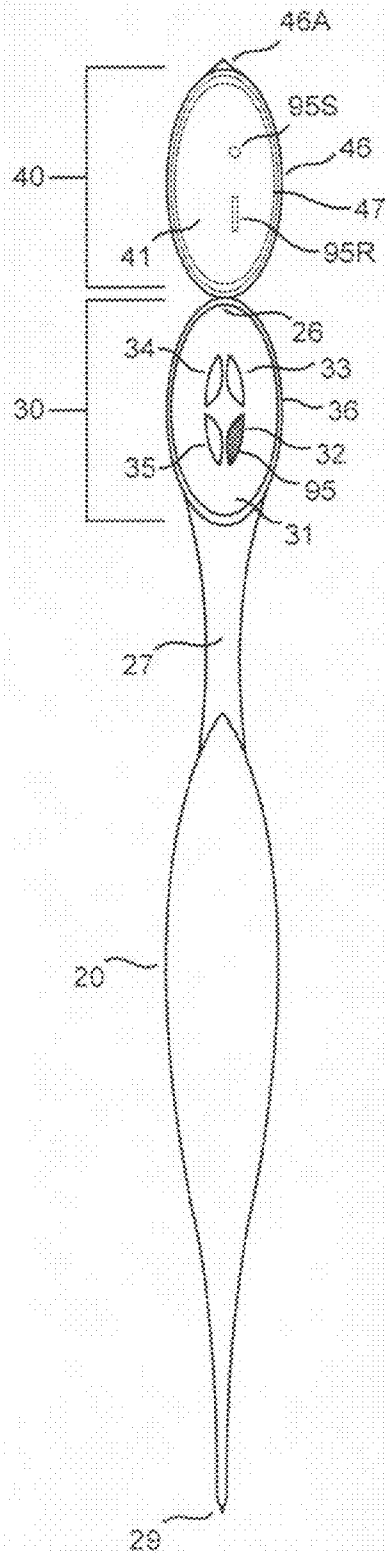


FIG. 3

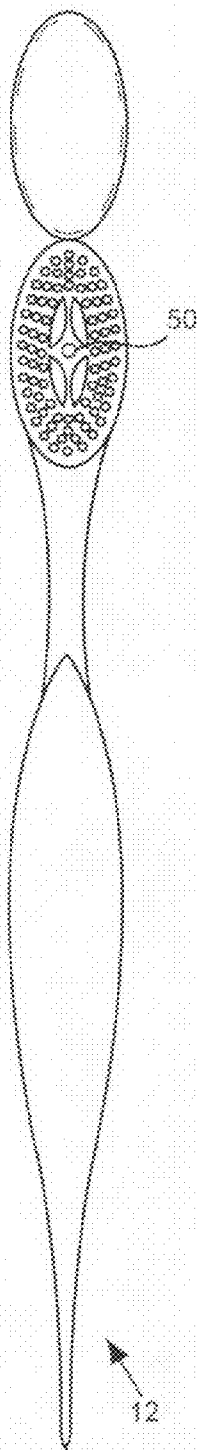


FIG. 4

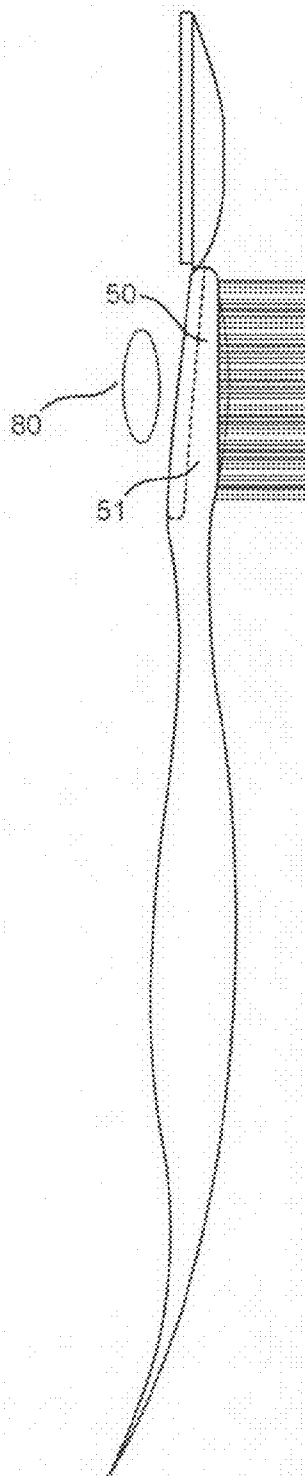


FIG. 5

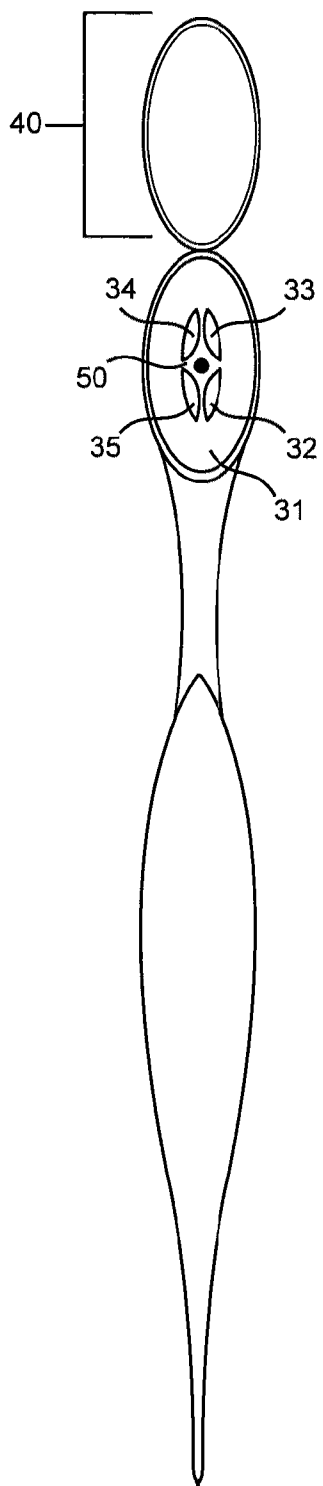


FIG. 6

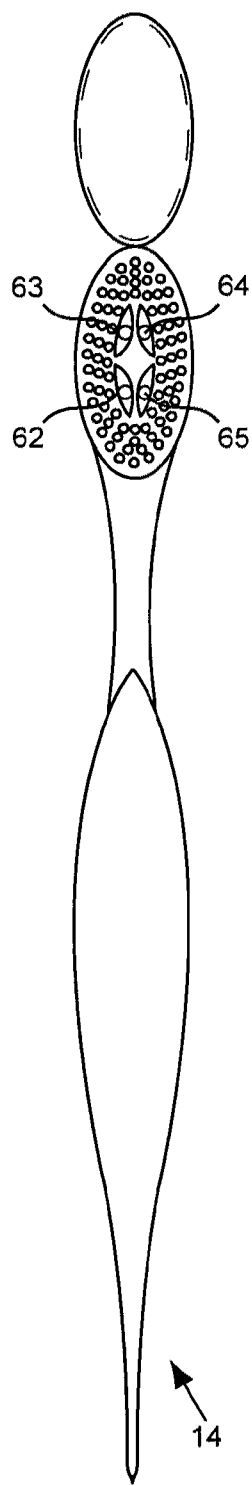


FIG. 7

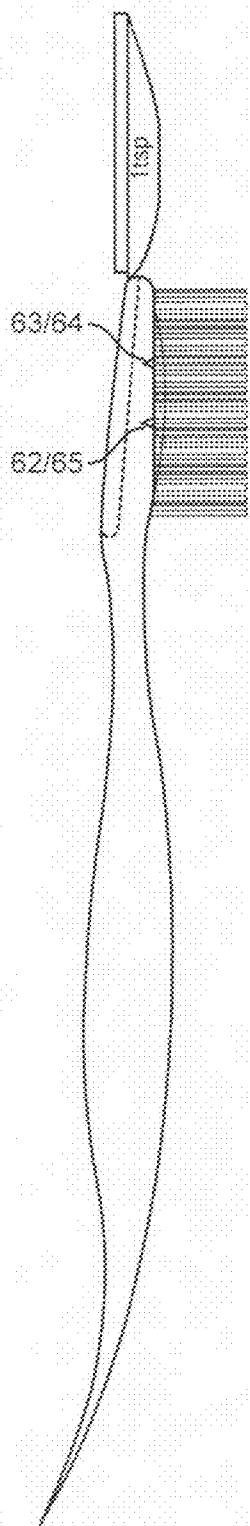


FIG. 8

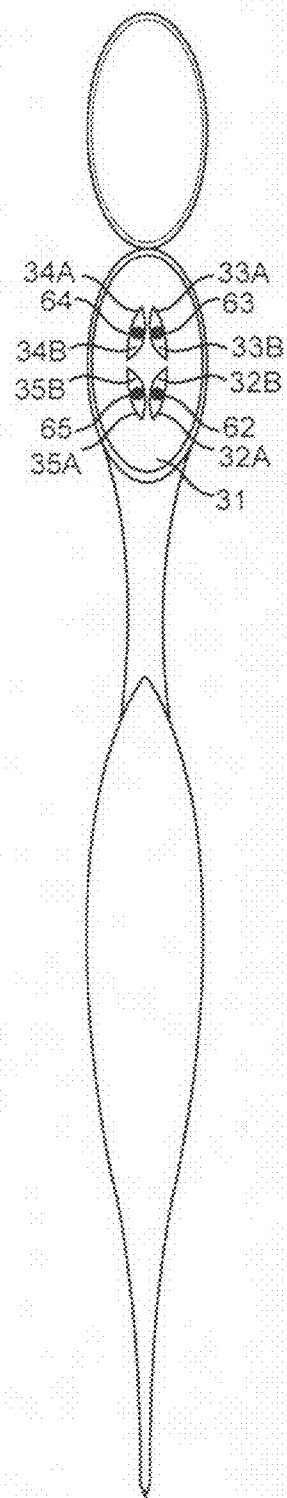


FIG. 9

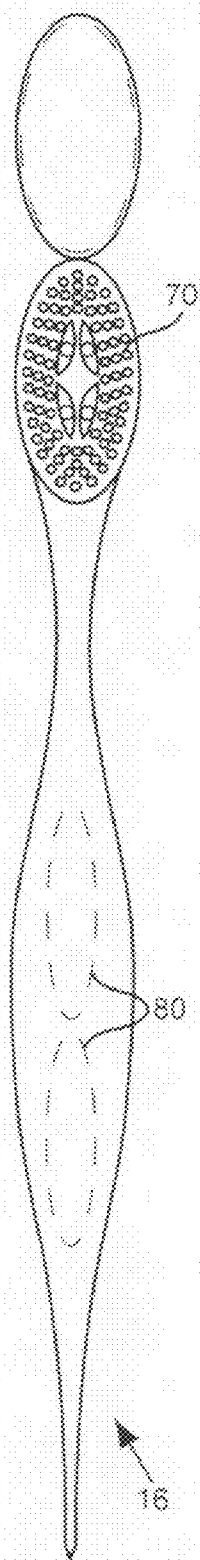


FIG. 10

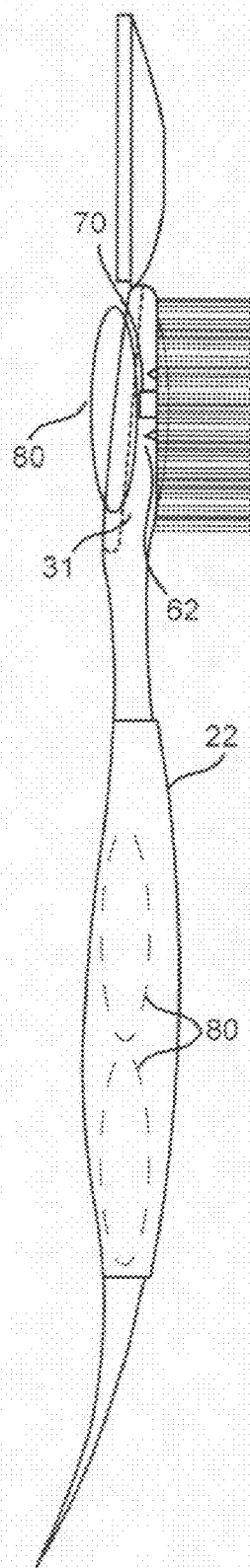


FIG. 11

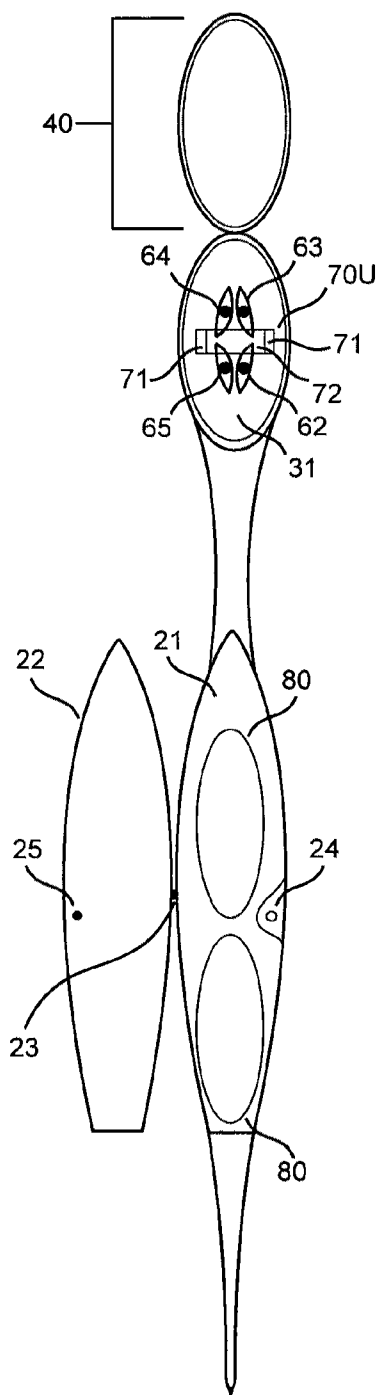


FIG. 12

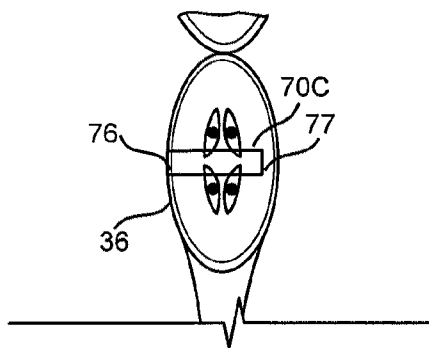


FIG. 12A

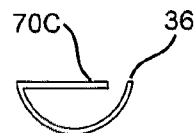


FIG. 12B



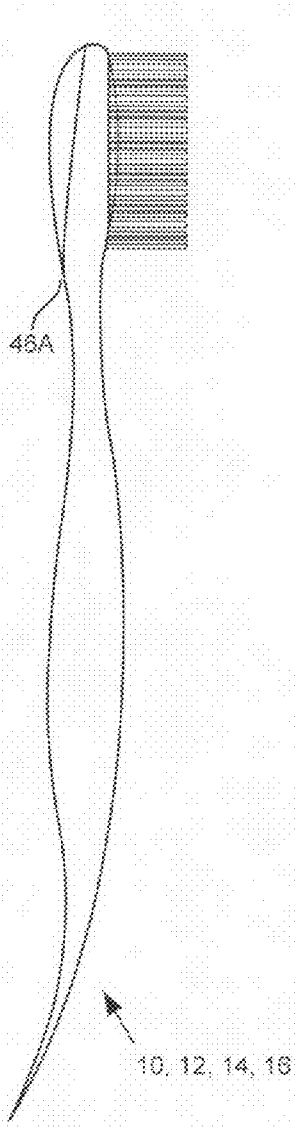


FIG. 13

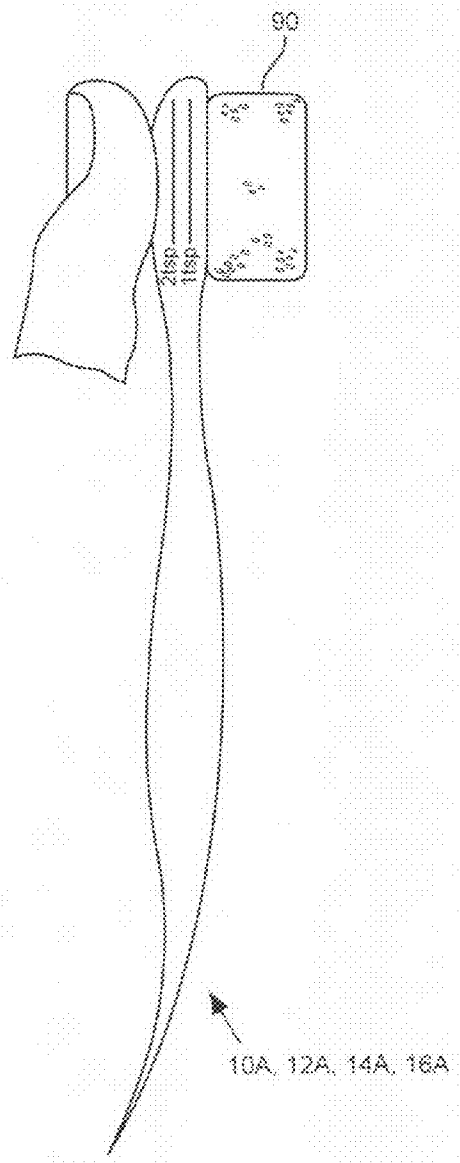


FIG. 14

## SQUEEZE APPLICATOR

### CROSS REFERENCES TO RELATED APPLICATIONS

**[0001]** This application claims priority on U.S. Provisional Application Ser. No. 61/404,700 filed on Oct. 7, 2010, the disclosures of which are incorporated herein by reference.

### FIELD OF THE INVENTION

**[0002]** The present invention relates to improvements in applicators, and more particularly to apparatus which are capable of more easily and effectively dispensing a measured dosage of a substance.

### BACKGROUND OF THE INVENTION

**[0003]** There are many known applicator devices that have offered various different functional approaches to the dispensing of a product, with each having certain advantageous uses. Within that body that includes many prior art patents, are a group of inventions being related to the disclosure herein, but are found to be lacking for one or more reasons. For example, U.S. Pat. No. 3,353,898 to Lamberti for "Pocket Size Combination Toothbrush and Paste Dispenser," discloses a bag or sack that is the same length and width as the tooth brush head, with it being proximate thereto, and is made of a sealed flexible material to contain paste. Passages in the base which support the bristles provide a means for a pin to be used to perforate the sealed paste container, in a very inconvenient approach to beginning the product dispensing.

**[0004]** Similarly, U.S. Pat. No. 5,366,310 to Flors is for a toothbrush that has a slide-in supply of paste. The Flors approach provides significant improvement in the initial dispensing of product in that it comprises a "double strip," with the most external strip projecting from one end. The external strip forms a "pulling tongue," which may be pulled to release the toothpaste onto the bristles, after the toothpaste container has been positioned on the head of the container, obviating the need for a pin.

**[0005]** Another comparable invention may be found in U.S. Pat. No. 4,844,641 to Grosfilley for "Disposable Toothbrush with a Dose of Toothpaste." The Grosfilley device comprises a two-piece arrangement—with a back having a cavity filled with toothpaste and being protected therein by a film, and being flexible relative to a body that has bristles on one side and a ridge on the other side. When ready to utilize the device, the user simply applies a force to the back, so that the ridge contacts and breaks the film, after which toothpaste may be expelled from the cavity and flow through passages. Storage of the toothbrush, prior to and after usage, is in a case, in which the back slides into a one storage area, while the ridge and protruding bristles maneuver into a second storage area. Although this arrangement is cumbersome, this separation nonetheless serves to prevent inadvertent puncturing of the film and wasteful dispensing of toothpaste while the device is stored in the case.

**[0006]** An invention offering limited improvement over the cumbersome storage technique of Grosfilley is found in U.S. Pat. No. 5,476,333 to Matthews for a "Hygienic Toothbrush." Matthews discloses a handle and a compartment with protruding bristles, and with a plurality of ports between the storage compartment and the base from which the bristles emanate. Access to the compartment is by a hinged closure member that is maintained in a closed position using a locking

stud on the closure member that is received by a locking recess on the compartment. A "cartridge" may be placed in the compartment, and when the closure member is closed, projections on the closure member perforate the cartridge to release its contents.

**[0007]** The invention disclosed herein offers a far more elegant solution to such dispensing containers, and includes features which make it more durable, more effective, and easier to use. In addition, variations to the basic device that are disclosed in alternate embodiments, provide functionality making it suitable for dispensing of liquids, as well as gels and pastes, and for dispensing measured amounts of a product.

### OBJECTS OF THE INVENTION

**[0008]** It is an object of the invention to provide a finger-actuated squeeze applicator that may be usable for dispensing of liquids, gels, pastes, semi-liquid, or semi-solids.

**[0009]** It is another object of the invention to provide a squeeze applicator device that may be utilized as either a disposable dispenser or as a reusable dispenser.

**[0010]** It is a further object of the invention to provide a squeeze applicator device that more quickly and effectively releases a substance stored in a pouch for delivery to a receiving surface Or user.

**[0011]** It is another object of the invention to provide a dispensing device that is less susceptible to clogging of openings by a product pouch.

**[0012]** It is also an object of the invention to provide a dispensing device capable of storing product pouches to accommodate travel and subsequent use of the product therein.

### SUMMARY OF THE INVENTION

**[0013]** A dispensing and applicator device may be comprised of a graspable handle portion and a head portion, with the graspable handle portion transitioning into the head portion. The head portion may have a front side and a back side. The back side may comprise an opening into a cavity therein, that is finable with a substance—liquids, gels, pastes, semi-liquids, or semi-solids. The front side may comprise a plurality of bristles extending therefrom, and one or more orifices into the cavity, through which the substance may be dispensed. The orifices may be specifically adapted as to size and/or shape according to the viscosity and nature of the substance to be dispensed, being directly proportional thereto, as well as according to the desired speed for dispensing of the substance.

**[0014]** The product may be retained in the cavity of the head portion through use of a removable cover, which may preferably be bulbous, and which may also thereby serve to increase the storage capability of the cavity. The resilient cover may be pivotally mounted to the head portion to be pivotable between a closed position, where the cover is securable to the head portion to enclose the cavity, and one or more open positions in which the cavity is exposed. Both the cavity in the head portion and the bulbous-shaped cover may each be capable of individually holding a measured amount of the substance. One or more graduated markings on a side of the head portion and/or the cover portion may indicate to the user the amount of the substance stored therein.

**[0015]** The orifices may be covered by one or more pieces of a thin foil or flexible film, such as a thermoplastic film, to

prevent inadvertent product dispensing and to preserve the integrity of the product (retain moisture, etc.) for extended shelf-life of the device/substance. The one or more pieces of foil/film may rupture to uncover the one or more orifices when pressure is applied to the bulbous cover. To more easily rupture the foil/film, one or more protruding members may be integral to the cover portion and be positioned thereon so as to protrude in toward the cavity when the cover is in the closed position. The one or more protruding members may be sufficiently long so as to pierce the one or more pieces of foil/film when pressure is applied to the bulbous cover. The protruding member may be one or more of: a conical spike-shaped protrusion, a cylindrical protrusion, and a rectangular-shaped protrusion. Where a foil/film is used to cover the orifices as an oxygen or water vapor barrier, it may be a single layer or it may be multi-layered, depending on the properties of the product being stored therein and the degree to which the vapor barrier is to be effective. The foil and film layer(s) may be added to the dispenser to cover the orifices by using one or more adhesive layers.

**[0016]** In addition to, or as an alternative to the foil/film, a thin, flexible layer of plastic material may be incorporated into the dispenser so as to block each of the orifices, except for one or more slits therein that may form a series of flexible extensions being normally biased to seal each of the orifices.

**[0017]** In another alternative embodiment, the substance may be stored in the dispenser head within a self-contained and sealed membrane of a product pouch. The pouch membrane may be ruptured by having the user firmly depress the bulbous cover portion. To assist in the rupturing of the product pouch, the head portion may contain one or more protrusions to affirmatively cause puncturing. A central spike may be utilized, or instead, spikes may be strategically located to cause puncturing of the product pouch, with the spikes being in direct proximity to each of a plurality of openings, which may facilitate more rapid dispensing of the product, and may also serve to assist in more complete dispensing from the pouch (i.e., leaving less of the substance retained within the pouch membrane). Where protrusions are used for rupturing the pouch, a biasing member may also be utilized within the head cavity to prevent puncturing of the product pouch prior to intentional dispensing by a user. The openings on the front side may be surrounded by a plurality of bristles or by a sponge, either of which may be usable in applying the substance upon the intended receiving surface for the substance.

**[0018]** To better facilitate extended use of the dispenser for the embodiment utilizing a sealed product pouch, the graspable handle portion may have an opening into a storage compartment therein. A handle cover being pivotally attached to the handle portion may be pivotable between a closed position, where the handle cover is securable to the handle portion to enclose the handle cavity, and one or more open positions in which the handle cavity is exposed. The compartment may be used to store additional product pouches for subsequent use.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0019]** FIG. 1 is a front view of a first embodiment of the squeeze applicator of the present invention.

**[0020]** FIG. 1A is the head portion of the squeeze applicator of FIG. 1 shown enlarged, and with an alternate method of controlling flow of the substance exiting the orifices.

**[0021]** FIG. 2 is side view of the squeeze applicator of FIG. 1.

**[0022]** FIG. 3 is a rear view of the squeeze applicator of FIG. 1.

**[0023]** FIG. 4 is a front view of a second embodiment of the squeeze applicator of the present invention, being adapted for dispensing a substance within a self-contained membrane that forms a product pouch.

**[0024]** FIG. 5 is side view of the squeeze applicator of FIG. 4.

**[0025]** FIG. 6 is a rear view of the squeeze applicator of FIG. 4.

**[0026]** FIG. 7 is a front view of a third embodiment of the squeeze applicator of the present invention for use with a product pouch.

**[0027]** FIG. 8 is side view of the squeeze applicator of FIG. 7.

**[0028]** FIG. 9 is a rear view of the squeeze applicator of FIG. 8.

**[0029]** FIG. 10 is a front view of a fourth embodiment of the squeeze applicator of the present invention that incorporates one or more biasing members for use with the product pouch.

**[0030]** FIG. 11 is side view of the squeeze applicator of FIG. 10.

**[0031]** FIG. 12 is a rear view of the squeeze applicator of FIG. 11, but with the cavity cover in the open position.

**[0032]** FIG. 12A is the rear view of FIG. 12, but shown with an alternate embodiment for the product-pouch biasing member.

**[0033]** FIG. 12B is a section view of the product-pouch biasing member of FIG. 12A.

**[0034]** FIG. 13 is a side view of the squeeze applicator of the present invention, with the cover portion shown in the closed position.

**[0035]** FIG. 14 is a side view of one embodiment of the squeeze applicator of the present invention, having a sponge applicator, and being actuated by the thumb of a user or medic.

#### DETAILED DESCRIPTION OF THE INVENTION

**[0036]** FIGS. 1-3 show a first embodiment of the present invention, in which a squeeze applicator 10 may comprise a finger graspable handle portion 20 with a pick 29 at one end, and a transition region 27 at the other end, which transitions into head portion 30. Extending from the head portion 30, and being flexibly connected thereto, may be a resilient bulbous cover portion 40.

**[0037]** The back of head portion 30 may have an opening into a cavity 31 that is capable of holding a measured volume of a substance, possibly being a gel or paste, such as shoe polish or tooth paste. There may be a plurality of openings from the cavity to the front face 39 of the head portion 30, from which may protrude a plurality of bristles 91, which may be soft nylon or animal hair, or may alternatively be a sponge 92 (FIG. 14). In one embodiment, the plurality of openings may comprise orifices 32, 33, 34, and 35, which may be any shape or size, and for example, may be roughly elliptical in shape, as seen in FIGS. 1 and 3. Orifices 31-35 may be symmetrically disposed about the center of the front face 39, which may be in the form of a curved surface (FIG. 12B) and thereby be functional for funneling of a liquid, semi-liquid, or semisolid substance towards the openings. The bristles 91 may be positioned to surround the orifices 32-35, as seen in FIG. 1, or alternatively, some of the bristles 25 may be located between the orifices 32-35. Opposite to the front 39 of head 30 may be an upper peripheral annular edge 36, which forms

the back side. The wall of head 30 may contain a recessed area 37 that terminates in a shoulder 38.

[0038] The cover portion 40 may be attached to head portion 30 by way of a pivotal connection therebetween, which may be a secondarily applied hinge means (fastened or bonded), or alternatively may simply comprise an integrally formed flexible strip 26 of material, which may be small in length and/or width, and be resilient so as to readily permit rotation of cover portion 40 relative to the head portion 30, being pivotable from the open position seen in FIG. 3, to the closed position shown in FIG. 13. The entire squeeze applicator 10 may be formed of any suitable material, including, but not limited to plastic such as polypropylene. A portion of the material of the head portion may be clear to provide a window through which the user may easily ascertain the amount of substance within the cavity, which may be quantified through the use of one or more graduated markings (e.g., 1 tsp, 2 tsp, . . . ) on a side of the head portion (see FIGS. 5 and 14).

[0039] The cover portion 40 may comprise any peripheral shape, including, but limited to a circular shape, but in a preferred embodiment it is generally elliptical. The cover portion 40 may further comprise a bulbous portion 42 that forms a cavity 41, which may also be capable of holding a second measured volume or amount of a substance—a gel, paste, or other semi-liquid or semi-solid substance. The bulbous portion 42 of cover 40 may have a sufficiently thin wall to permit its resilient material to flex suitably, as described hereinafter. The edge periphery may be defined to comprise an exterior peripheral edge 46, which, when the cover 40 is closed, may be in proximity to, or actually contact with, the peripheral edge 36 of the head portion 30. Protruding from one end of the peripheral edge 46 of cover portion 40 may be a small lip 46A, which may protrude outwardly, as seen in FIG. 13, to permit a user to utilize a fingernail or other means, to snap open the cover.

[0040] Retention of the cover portion 40, in the closed position, may be accomplished in one embodiment by incorporating a recessed ellipsoidal wall 47 to be adjacent the exterior ellipsoidal edge 46, and by having recessed ellipsoidal wall 47 extend more distally than exterior ellipsoidal edge 46 to form interior ellipsoidal edge 48. This structural arrangement of the cover portion 40 may be so formed to be complementary to that of the head portion 30, so that closure of the cover portion 40, in going from FIG. 2 to FIG. 13, may be achieved with rotation or pivoting of the cover using flexible connecting strip 26, so that recessed ellipsoidal wall 47 engages with the recessed area 37 of the head portion 30. This engagement may progress until either: interior edge 48 of cover portion 40 contacts shoulder 38 of head portion 30; or exterior edge 46 of cover portion 40 contacts upper annular edge 36 of head portion 30.

[0041] In this embodiment, a first measured amount of a substance or product may be loaded into cavity 31 of the head portion 30, and/or a second measured amount (or dosage) may be loaded into the cavity 41 of cover portion 40. Where the substance comprises one having a substantial consistency or high viscosity, such as for where the product may be a toothpaste, a creamy shoe polish, a gelatin-like medicine (i.e., antibiotic ointment), a cosmetic sample (i.e., a moisturizing cream), or certain glues (ordinary adhesive for wood/plastics and medical grade skin glues such as 2-octyl cyanoacrylate), both cavities (31 and 41) may be filled with the product, and the cover may then be rotated into the closed position to retain

the product therein. Where the product tends more towards being semi-liquid than semi-solid, having lower viscosity, such as oils, cough syrups, lotions (i.e., Calamine lotion) and the like, practicality may dictate the filling of only cavity 31, or alternatively may dictate the utilization of a filling means, such as by injection, with the substance being delivered into both cavities 31 and 41 through the openings, where the cover was already closed to form a single larger volume cavity.

[0042] Therefore, the size of the orifices 32-35 may be calibrated to be directly proportional to the nature and viscosity of the substance being dispensed, and may be much smaller than illustrated in FIGS. 1 and 3, and may also be more numerous. The calibration may be such that as viscosity decreases to be more like that of a liquid, the size of the openings similarly decreases, and where viscosity increases to be more paste-like, the size of the openings similarly increase. The proportionality of the size increases/decreases may also depend upon the speed with which certain products may be desirably dispensed.

[0043] However, where it may be desirable to dispense a product more quickly using large openings, openings so large they may be less than ideally suited for retaining that particular viscosity of product prior to its intentional dispensing, a very thin film 95 may be utilized to seal the orifices 32-35, which is illustrated in FIG. 3 by the shading for orifice 32. The very thin film 95 may yield or tear open when a user seeks to dispense product, by simply applying a thumb or other finger to the bulbous portion of the cover 40 (FIG. 14), without requiring physical puncturing of the thin film by a pin or other sharp object.

[0044] Rupturing or tearing of the foil at the time when a user wishes to dispense product onto the bristles or sponge may be aided by incorporating an infinitesimally small pin/needle prick in the foil of the finished dispenser. The needle prick may serve as a weak point to help initiate the rupturing/tearing of the foil/film once pressure is applied to the cover. Alternatively, rupturing may be affirmatively aided by incorporating a spiked member 95S onto the cover portion 40. As seen in FIGS. 2 and 3, a protrusion, which may be a conically-shaped spike member 95S, may be integrally located on the cover and may be at a proper location and have a suitable length and be at the appropriate angle, so that when the cover is in the closed position and the user begins to apply pressure to the bulbous cover portion 40, the deflection may cause the pointed end of the spike 95S to pierce the foil 95 and permit immediate outflow of the substance contained therein.

[0045] The protrusion may also, as seen in FIGS. 2 and 3, be a rectangular-shaped protrusion 95R, which may, but need not be, received in rectangular orifices rather than the elliptically shaped orifices 32-35 shown in the figures. The cross-sectional dimensions of the rectangular protrusions may be sized not only to provide sufficient column stability to ensure proper piercing of the foil, but also may be minimal so that when received within the rectangular orifices, the net open area is nonetheless sufficient to permit adequate passage of the substance therebetween, while the rectangular protrusion (s) is still being received therein. Rectangular protrusion 95R may be chamfered at the end, to better help in piercing the foil, and it may also incorporate a small conical spike member on the end, or a small cylinder transitioning into a conical spike or tip. The number of protrusions utilized may preferably match the number of foil covered orifices, so, for

example, where the four foil-covered orifices 32-35 are used, four spikes 95S may also be incorporated into the cover portion 40.

[0046] A foil/film 95 may be utilized so as to only seal across each individual orifice 32-35, as illustrated with orifice 32 in FIG. 3, where four separate pieces of foil/film 95 are utilized for an applicator. Alternatively, a single sheet of foil/film may be utilized to completely cover the interior cavity. As an alternative to use of the foil/film, which would only permit preservation and retention of the product within the cavity of the head portion for a single use, the orifices 32-35 may be covered by or blocked with an integrally formed ultra-thin layer of resilient material, preferable the same material from which the remainder of the applicator is made. This ultra-thin material may have a single slit 96, as seen in FIG. 1 for orifice 35. Or, as seen in FIG. 1A, the ultra-thin cover material may have an axial (length-wise) slit 96A, and a plurality of lateral slits 96L that may result in the ultra-thin layer of resilient material comprising a series of flat, flexible finger-like extensions, which may generally seal the opening, until finger pressure is applied to the resilient bulbous cover 40. This finger pressure may cause deformation of resilient bulbous cover 40 and pressure within the substance contained in the cavity 31 of the head portion 30, which may thus cause elastic deflection of the flat finger-like member to allow the substance to extrude outward therefrom. Once the finger pressure is removed from the bulbous cover 40, the outflow of substance will cease, as the finger-like members will be internally biased back to their original position and thereby seal the orifice until pressure is once again applied to the cover 40.

[0047] In one embodiment, it may be desirable to utilize both the foil/film covering and the slitted ultra-thin resilient layer of material that fowls biased extensions. This embodiment may serve a dual purpose in that the foil covering may preserve product freshness (retention of moisture, etc.) and extend the shelf life of the applicator 10 for a substantial period of time, while the biased extensions may, once the product is sold and the user has broken the foil seal to begin use of the substance, preserve the substance's freshness for a somewhat shorter duration of time, while still providing ready dispensing of the product that is more convenient than twisting on/off of a cap.

[0048] In an alternative embodiment, seen in FIGS. 4-6, a squeeze applicator 12 may comprise the same elements as applicator 10, but instead of needing to use thin film 95 and/or the slitted ultra-thin material, or perhaps in addition to those features, a product pouch or cartridge 80 may be carefully inserted into cavity 31. The product pouch 80 may be any suitable shape, and perhaps may mirror the shape of the cavity of the applicator, and it may contain a measured amount of the desired semi-liquid or liquid product sealed within a membrane casing or coating. The casing of the pouch 80 may serve to provide for its structural integrity, and it may also preserve the moisture content and/or freshness of the substance. The casing/coating of pouch 80 may be sufficiently thin so as to rupture when pressure is applied to the bulbous portion 42 of cover 40, or instead a thicker membrane may be used in combination with a single spike member 50 that may be disposed within the cavity 31, so as to have the sharp point protrude toward the product pouch 80 and cover portion 40, when the cover occupies the closed position.

[0049] A sufficient amount of clearance may be used to prevent inadvertent or premature puncturing of the pouch by the spike. When the user deliberately depresses the bulbous

portion 42 of cover 40, such depression causes the pouch 80 to impinge upon the spike 50, breaking the casing open and releasing the liquid contents of the pouch. The spike 50 may be centrally located so as to provide for puncturing of the casing that may result in the out-flowing of substance in very close proximity to orifices 32-35. The curved shape of the cavity 51, which may also include a curved inner wall 51 being better suited for smaller sized pouches 80, may serve to allow gravity to direct the product toward the orifices 32-35. In place of a pouch 80, a glass vial designed with a weakened center section may be used, so that depressing of bulbous portion 42 of cover 40 may break the glass vial at a pre-designated point in the vial, releasing its contents.

[0050] It should be noted that the applicator device disclosed herein may function as a disposable single use dispensing system, or may be functional for utilization on multiple occasions, such as for a multi-day business trip, where the user may require a toothbrush and paste. The dispenser may also be functional where the user is required to adhere to a certain regimen in applying a particular amount of ointment, cream, or other substance to a skin or other surface. So, the device may also be suitable for long term usage. Also, the casing of pouch 80 may be made of a biodegradable, environmentally friendly material, permitting it to be readily discarded down a sink, particularly when rinsing the brush head therein after a use. The device may additionally be made of a suitable plastic material to permit it to undergo repeated cleaning in a dishwasher.

[0051] Although the squeeze applicator 12 with the centrally located spike 50 and peripheral orifices 32-35 provide substantial improvement over prior art dispensers, particularly as to the proximity of the central spike in relation to the openings, to improve the speed and effectiveness in the outflow of the substance (i.e., the casing does not tend to clog the opening), another embodiment—squeeze applicator 14—offers even greater improvement in quickly directing the flow of the substance towards the openings. As may be seen in FIGS. 7-9, for squeeze applicator 14, in place of the central spike 50, may be a series of spikes 62, 63, 64, and 65, each being disposed centrally to what had been orifices 32, 33, 34, and 35, respectfully, to subdivide the orifices into the smaller openings—32A, 32B, 33A, 33B, 34A, 34B, 35A, and 35B—by having the bottom of each spike connecting the opposite edges of the openings. This structural arrangement permits the substance that outflows from the four separate ruptures in the casing of a pouch 80, to directly and quickly exit through the openings 32A-35B, without significant pooling occurring at the bottom of cavity 31.

[0052] In yet another embodiment, shown in FIGS. 10-12, further improvement can be made, particularly as to preventing inadvertent or premature rupturing of the pouch 80, by the inclusion of a U-shaped safety/biasing strap 70U (FIG. 12) or a cantilevered safety/biasing strap 70C (FIG. 12A), in squeeze applicator 16. The strap 70U may have ends (legs) 71 that are integral with or fixed to the bottom of the cavity 31, with a central portion 72 that may arc above the tip of the spikes 62-65. As seen in FIG. 11, the pouch 80, once inserted into the cavity 31, may be restrained from contact with (biased away from) the spikes 62-65 until after the cover portion 40 is closed, and even then, it may yet be restrained until after the user has depressed the bulbous portion 42 of cover 40. Depressing the bulbous portion 42 of cover 40 forces the

pouch to deflect the central portion 72 of safety strap 70 and be impaled upon the spike, to puncture the casing of the pouch 80 and release the substance.

[0053] The U-shaped strap 70 provides another significant improvement over prior art dispensers, in that it serves to keep the casing of pouch 80 generally away from the openings 32A-35B after being punctured, to thereby reduce or eliminate the possibility of the casing clogging either a portion of, or all of, the openings. While the “U” shape of strap 70U may provide too high of a restraining force for certain fragile casing materials, such a problem may be reduced through the use of very thin strip of material for strap 70U. Alternatively, a cantilevered strap 70C may be used instead of Ti-shaped safety strap 70U. Cantilevered strap 70C may have an end 76 that attaches to one side of the upper peripheral annular edge 36 of head 30 (FIGS. 12A and 12B), with the strap extending towards the center of the cavity 31 and terminating in a second end 77. The strap 70C, being secured to the dispenser at only one end and cantilevering therefrom, may deflect more readily.

[0054] Where the applicator is intended for extended usage, such as for a business trip, where the user neglected to bring a toothbrush and toothpaste, the squeeze applicator 16 (FIGS. 11 and 12) may also desirably include a storage compartment therein. Squeeze applicator 16 may have a storage compartment formed by the handle portion 20 comprising a cavity 21, and with a cover 22 being attached to the handle portion 20 using a hinge/tab 23. The cover 22 may be secured in the closed position the same as cover portion 40 is secured to head portion 30, or alternatively, a locking stud 25 on cover 22 may be releasably received in a locking recess 24. The storage compartment may be used to retain extra pouches 80. In one embodiment, as seen in FIGS. 10-12, one pouch may be loaded and stored in the head portion 30 and be retained therein by cover portion 40, until used, while two or more other pouches 80 may be stored within cavity 21 of handle portion 20 and be secured therein by cover 22. Once the pouch 80 contained within the head portion 30 is used, the cover 40 may be opened, and the remains therein may be rinsed clean. A new pouch may thereafter be retrieved from cavity 21, and be loaded into the head portion 30 for a subsequent use.

[0055] For any of the above cited embodiments for the squeeze applicators 10, 12, 14, or 16, the bristles 91 may be replaced by a sponge 90 to create embodiments 10A, 12A, 14A, or 16A, which may better serve in the dispensing of a liquid (FIG. 14).

[0056] The examples and descriptions provided merely illustrate a preferred embodiment of the present invention. Those skilled in the art and having the benefit of the present disclosure will appreciate that further embodiments may be implemented with various changes within the scope of the present invention. Other modifications, substitutions, omissions and changes may be made in the design, size, materials used or proportions, operating conditions, assembly sequence, or arrangement or positioning of elements and members of the preferred embodiment without departing from the spirit of this invention.

We claim:

1. A squeeze applicator comprising:

a graspable handle portion;  
a head portion, said graspable handle portion extending from said head portion; said head portion having a front side and a back side; said back side comprising an opening into a cavity;

extending from said front side is a plurality of bristles, and said front side comprising one or more orifices into said cavity; and

a resilient cover; said cover being pivotal with respect to said head portion between a closed position, where said cover is securable to said head portion to enclose said cavity, and one or more open positions in which said cavity is exposed.

2. A squeeze applicator according to claim 1 wherein a size of each of said one or more orifices is calibrated according to a viscosity of the substance to be dispensed therefrom.

3. A squeeze applicator according to claim 2 wherein said calibrating of said size of said one or more orifices comprises sizing said one or more orifices in direct proportion to viscosity of the substance to be dispensed.

4. A squeeze applicator according to claim 3 wherein said size of said one or more orifices is proportional to a desired speed for dispensing of the substance.

5. A squeeze applicator according to claim 4 further comprises a flexible layer of material blocking each of said orifices, and each said flexible layer of blocking material having a slit therein.

6. A squeeze applicator according to claim 5 wherein said orifices are elongated, and wherein said slit through each said flexible blocking layer of material is in a length-wise direction.

7. A squeeze applicator according to claim 6 further comprising a plurality of slits in each said flexible blocking layer of material being in a lateral direction, to thereby form a series of flexible extensions being normally biased to seal each said respective orifice.

8. A squeeze applicator according to claim 7 further comprising one or more pieces of foil/film covering said one or more orifices, said one or more pieces of foil/film rupturing to uncover said one or more orifices when pressure is applied to said bulbous cover.

9. A squeeze applicator according to claim 8 further comprising a small pin prick in said foil/film.

10. A squeeze applicator according to claim 9 further comprising said one or more protruding members being integrally positioned on said cover portion so as to protrude in toward said cavity when said cover is in said closed position, said one or more protruding members being sufficiently long to pierce said one or more pieces of foil when pressure is applied to said bulbous cover.

11. A squeeze applicator according to claim 10 wherein said protruding member is one or more of: a conical spike protrusion, a cylindrical protrusion, and a rectangular protrusion.

12. A squeeze applicator according to claim 11 wherein said cavity in said head portion is capable of holding a measured amount of the substance.

13. A squeeze applicator according to claim 12 further comprising one or more graduated markings on a side of said head portion for measuring said amount of the substance.

14. A squeeze applicator according to claim 13 wherein said resilient cover comprises a bulbous-shaped cover being capable of holding a second measured amount of the substance.

15. A squeeze applicator according to claim 14 further comprising a pick protruding from an end of said handle portion.

16. A squeeze applicator according to claim 15 wherein said cover being pivotal with respect to said head portion

comprises said cover portion being secured to said head portion using a flexible strip of material.

**17.** A squeeze applicator according to claim **16** wherein said resilient cover being securable to said head portion to enclose said cavity therein is by an ellipsoidal wall on one of said head portion or cover portion being received in an ellipsoidal recess in the other of said head portion or cover portion using a friction fit.

**18.** A squeeze applicator according to claim **8** further comprising a protrusion protruding from said second side of said head portion into said cavity.

**19.** A squeeze applicator according to claim **18** wherein said protruding member is one or more of: a conical protrusion, a cylindrical protrusion, and a rectangular protrusion.

**20.** A squeeze applicator according to claim **19** wherein said protruding member protrudes from a central position on said second side of said head portion; and wherein said one or more orifices comprise four elongated orifices being disposed about said centrally positioned protruding member.

**21.** A squeeze applicator according to claim **20** wherein said elongated orifices are elongated orifices from the group

of elongated orifices consisting of elliptical-shaped orifices, and rectangular-shaped orifices.

**22.** A squeeze applicator according to claim **21** further comprising a biasing member within said cavity of said head portion.

**23.** A squeeze applicator according to claim **22** wherein said biasing member comprises one or more of: a cantilevered member being cantilevered out from a periphery of said cavity of said head portion; and a U-shaped member protruding from said second side of said head portion.

**24.** A squeeze applicator according to claim **23** further comprising an opening in said graspable handle portion into a storage compartment therein, and a handle cover being pivotally attached to said handle portion, said handle cover being pivotable between a closed position, where said handle cover is securable to said handle portion to enclose said handle cavity, and one or more open positions in which said handle cavity is exposed.

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