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(54) **BRUSH MOUNTED APPLICATOR**

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(57) **ABSTRACT**

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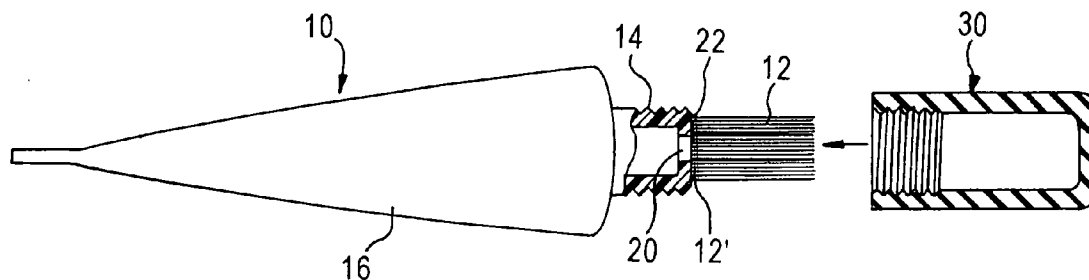
A container having a brush tuft mounted thereon is described. The tuft is formed by picking with the working end of said tuft received within a cylindrical picker, and the non-working end being fused. The container can be any type of container from an aerosol can to a squeeze tube, and the container has an outlet opening for dispensing the contents of the container through said outlet. The tuft is then mounted on the outlet so that any contents of said container will be dispensed into the bristles of said tuft. The tuft is formed of cut-to-length synthetic filament and the container typically has a nozzle at said outlet end. The tuft can be mounted within the nozzle or surrounding the nozzle, and the tuft can be a solid tuft or a hollow tuft.

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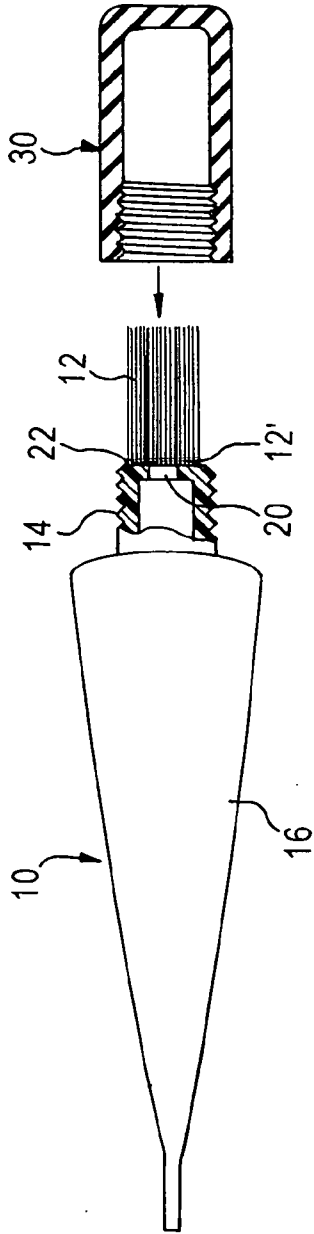


Fig. 100

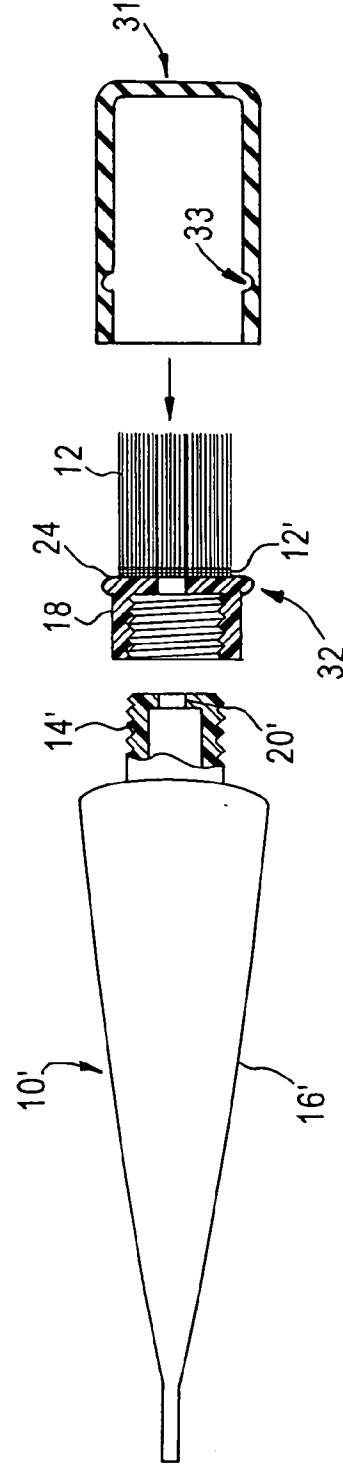


Fig. 200

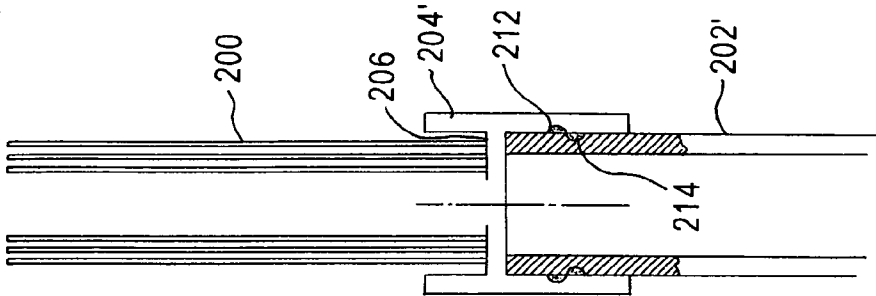


Fig. 202

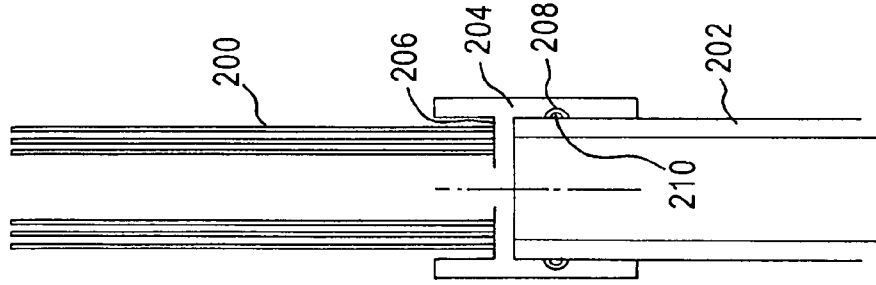


Fig. 201

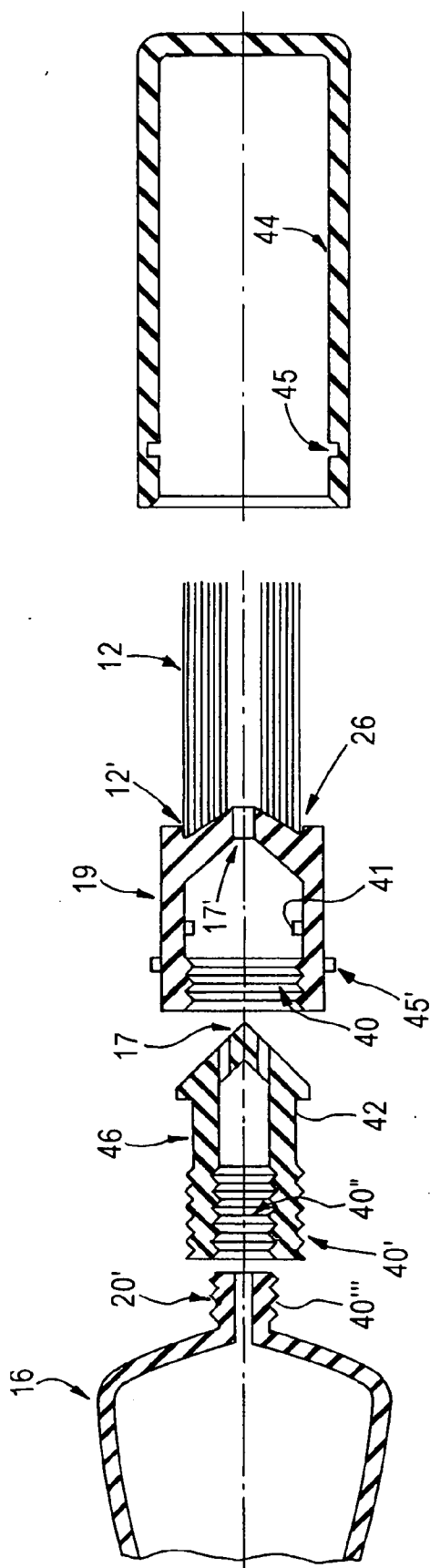


Fig. 203

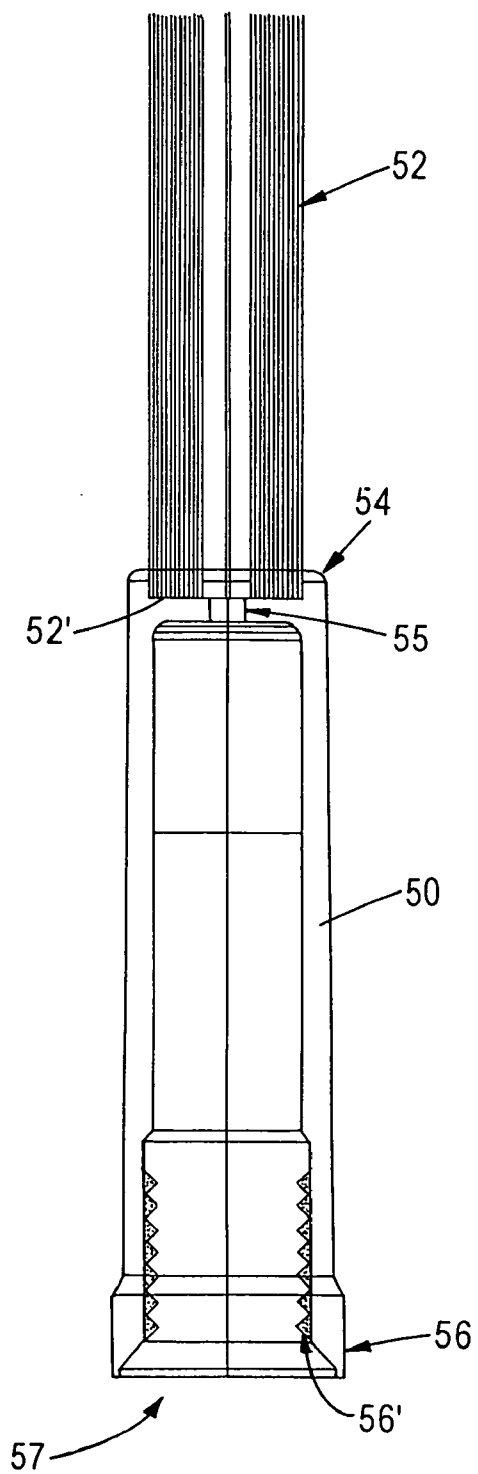


Fig. 300

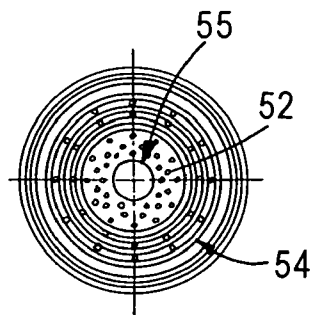


Fig. 400

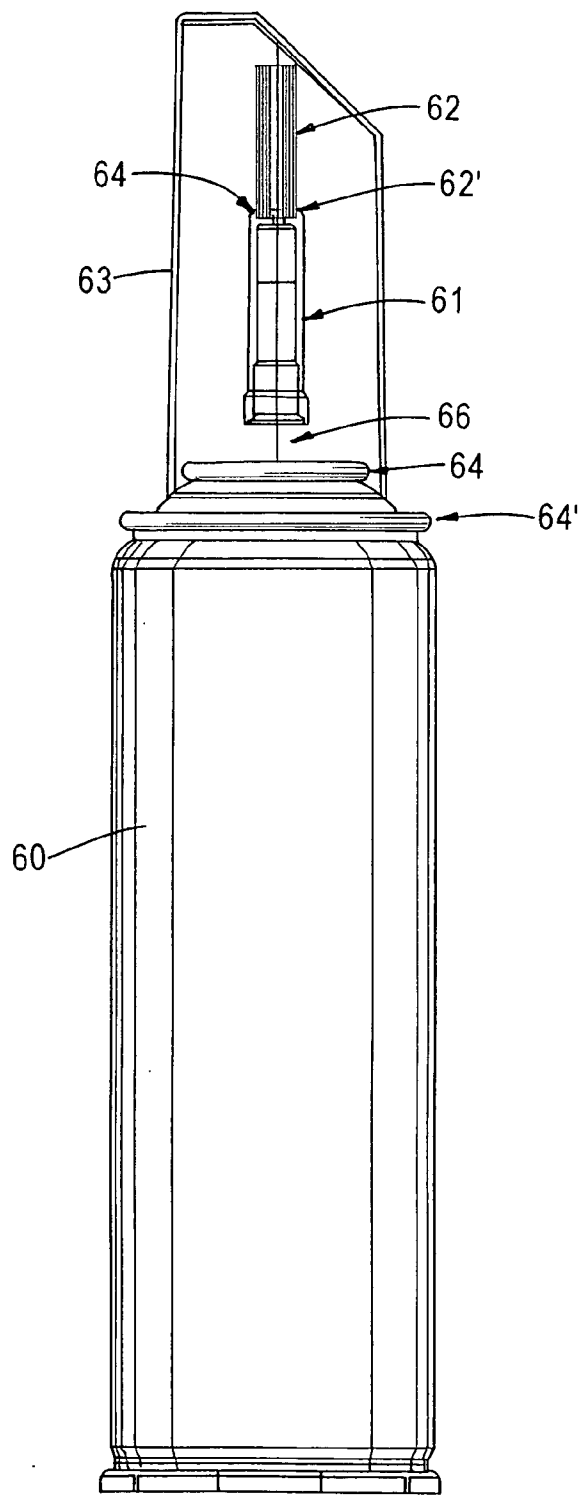


Fig. 500

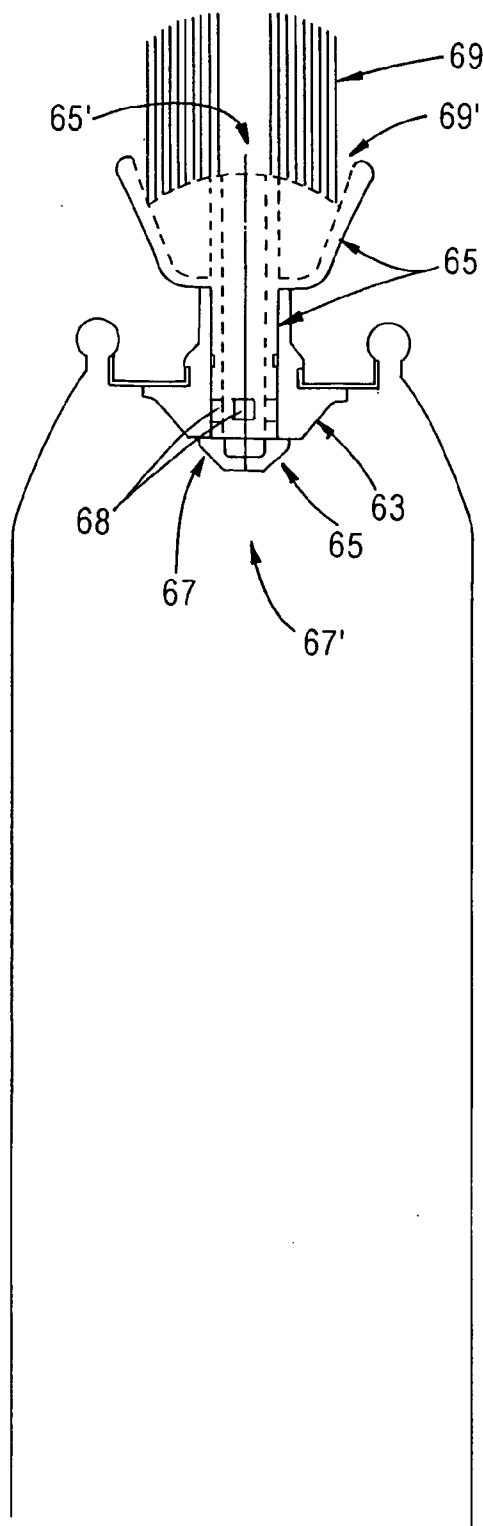


Fig. 501

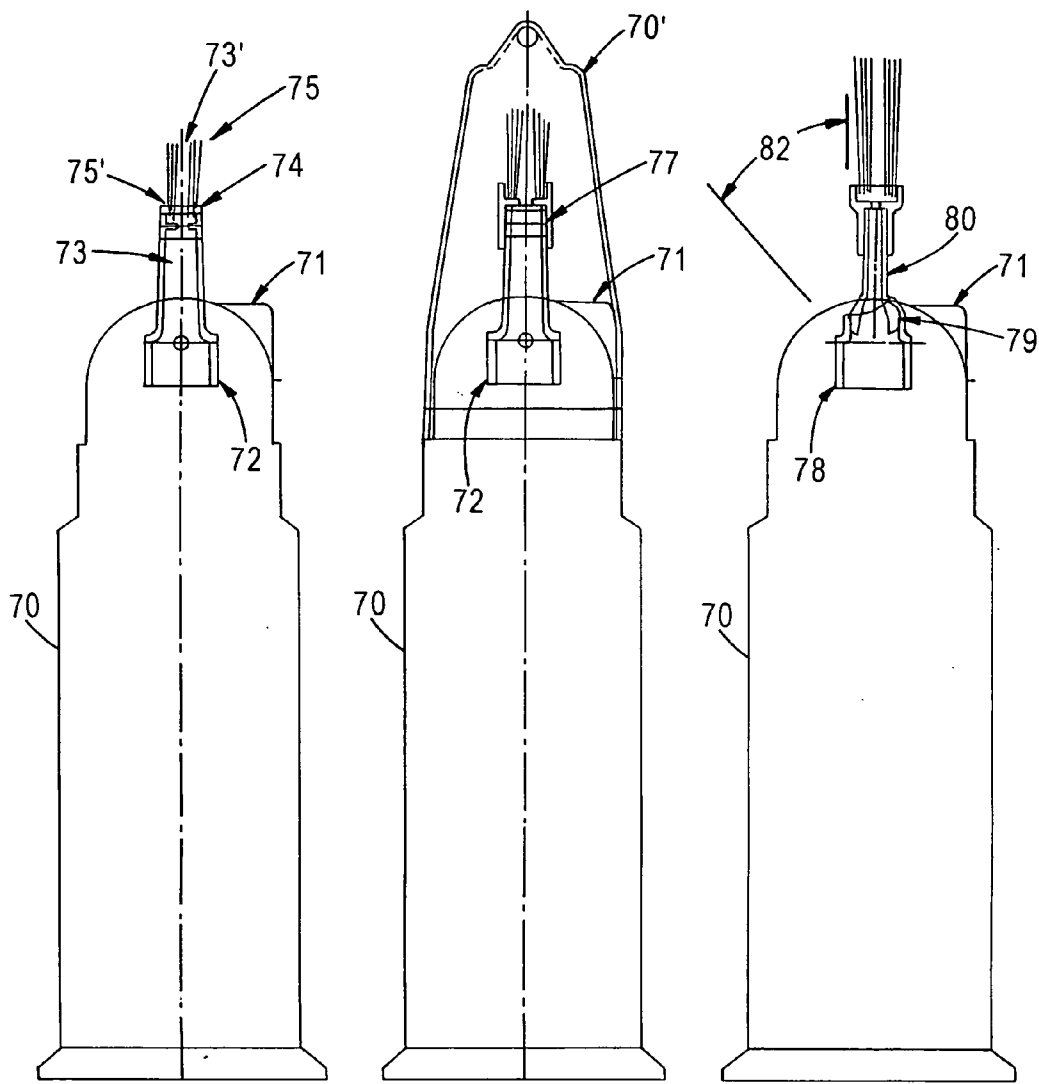
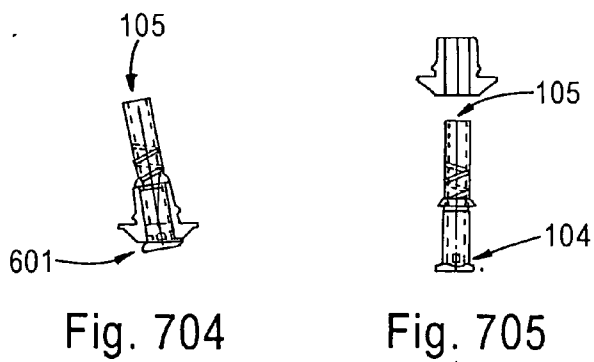
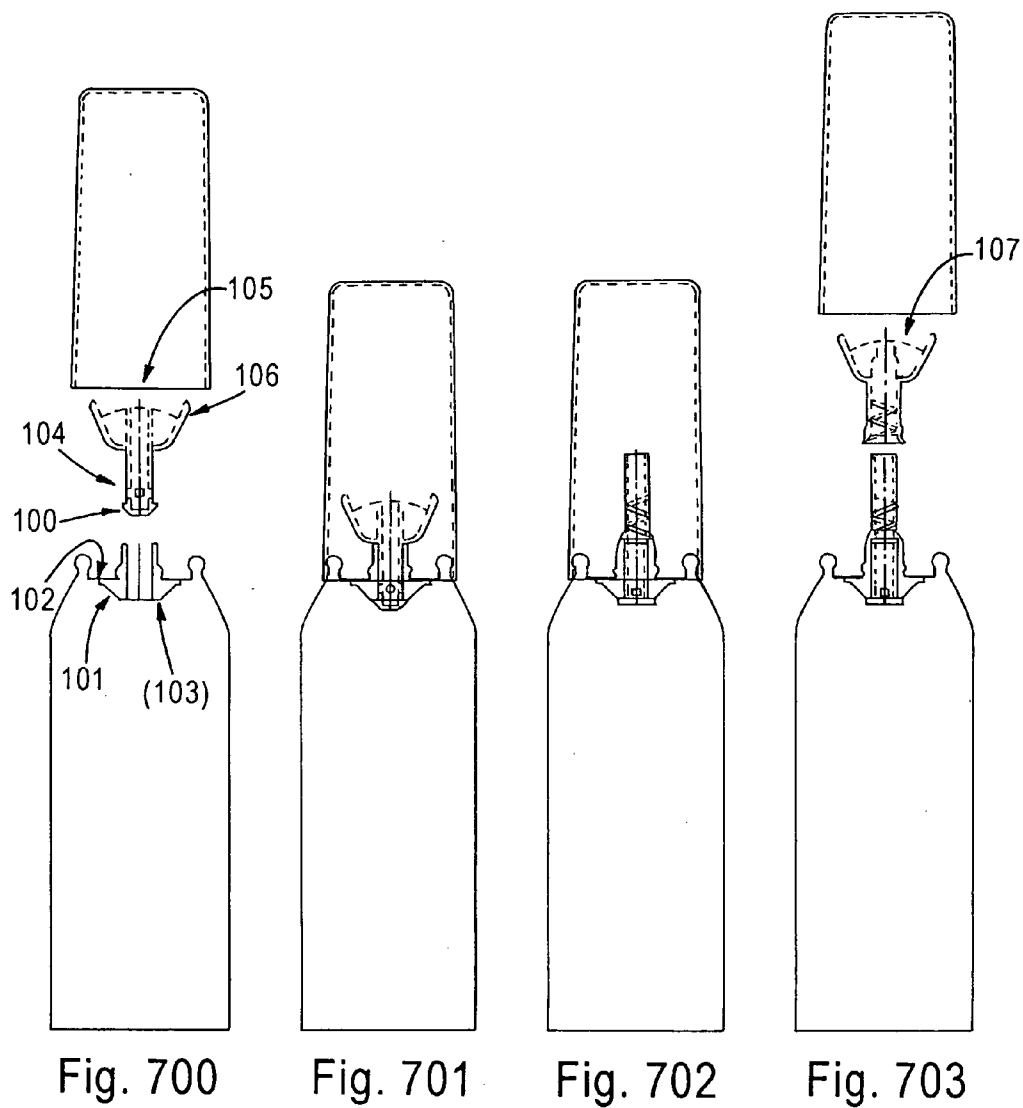


Fig. 600

Fig. 601

Fig. 602



BRUSH MOUNTED APPLICATOR

FIELD OF THE INVENTION

[0001] This invention relates to dispensers, and in particular to a container holding liquid to be dispensed with a brush mounted around the dispensing opening so that liquid or paste from the container flows into the bristles to be then applied to a surface.

DESCRIPTION OF THE PRIOR ART

[0002] Brushes have been mounted on containers to assist with in dispensing the contents of the container for many years. Applications include shaving brushes, and brushes for gels, ink, paint, and a wide variety of liquids, pastes, and gels. The bristles for such brushes are assembled on a container in a conventional fashion using glue, or friction to hold the bristles together.

[0003] For example, in U.S. Pat. No. 4,603,992, a shaving brush is described wherein a conventional aerosol shaving cream container has a dispensing nozzle and a brush surrounding the nozzle. Shaving cream from the container is dispensed into the interior of the bristles. The non-working ends of the bristles are held in place in a sleeve, which also receives the dispensing nozzle of the container so that the sleeve holds the bristle's non-working ends by friction.

[0004] In U.S. Pat. No. 4,789,261 a brush applicator is described for ink or other viscous liquids. The container of liquid is dispensed into a sponge which then leaks the liquid into a brush which is affixed to the container for the sponge.

[0005] U.S. Pat. No. 6,003,523 also describes a shaving brush wherein a conventional shaving brush with a handle has a bore there through and an adaptor for attaching the brush handle to an aerosol dispenser outlet valve. The brush handle receives the outlet valve and when pressed downwardly the shaving foam or gel is dispensed into the bristles. The brush is then removed from the aerosol container and the shaving soap or gel is applied to the skin in the usual manner.

[0006] U.S. Pat. No. 4,990,016 describes a disposable liquid applicator wherein the brush is used for applying nail polish or the like. A brush holder is formed integral with the bristles by using a hollow mold tube around a central pin which is then heated to fuse the ends of the thermal plastic bristle. The tube is then cooled and the bristles removed. It is required then to remove the pin before the disposable dispenser can be formed. The holder has an end flange which fits within the outlet for the dispenser so that the working ends of the tuft bristles extend outwardly from the neck of the dispenser. This is obviously a very labor intensive method for forming such a brush, especially in view of the fact that the dispenser is disposable and not subject to reuse.

[0007] The method for forming this brush is described in U.S. Pat. No. 4,795,218.

[0008] Accordingly there is a need for a means for providing a brush which is attachable to a container for dispensing the contents of the container, and which is not subject to losing bristles during application, and which also can be formed and mounted on a container rapidly and efficiently.

SUMMARY OF THE INVENTION

[0009] There is disclosed herein a fused, tuft of synthetic filaments which may be mounted on any type of container to provide a unitary structure wherein the contents of the container can flow into the brush, and then the brush contents may

be applied as desired. In one embodiment a brush is mounted on the nozzle for an aerosol can preferably by fusing the same to the can nozzle. The brush can be mounted externally, surrounding the nozzle or it may be disposed within the nozzle. The tuft may be fused to a sleeve which could be threadedly secured, for example, on a collapsible tube like a toothpaste tube. The device of this invention can be used to dispense liquid, viscous liquid, paste and the like.

[0010] Accordingly it is an object of this invention to provide a brush tuft mounted on a container for dispensing the contents of that container through the brush bristles.

[0011] It is another object of this invention to provide a hollow tuft of cut-to-length filament fused at one end and mounted at the fused end on a container outlet.

[0012] It is yet another object of this invention to provide a method for tufting a container to facilitate dispensing the contents of the container through the tuft of filaments.

[0013] These and other object will become readily apparent with reference to the drawings and following description wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 100 is a side view in partial section of an embodiment of this invention;

[0015] FIG. 200 is a side view and partial section of an embodiment similar to that of FIG. 100;

[0016] FIG. 201 is a fragmentary view of an embodiment of this invention and partial section;

[0017] FIG. 202 is a view of another embodiment of this invention in partial section similar to that of FIG. 201;

[0018] FIG. 203 is an exploded fragmentary view in section of an embodiment of this invention;

[0019] FIG. 300 is a cross sectional view of another embodiment of this invention;

[0020] FIG. 400 is a top view of the embodiment of FIG. 300;

[0021] FIG. 500 is an exploded view in partial section of another embodiment of this invention;

[0022] FIG. 501 is a front view of another embodiment of this invention in partial section;

[0023] FIG. 600 is a front view of an embodiment of this invention in partial section;

[0024] FIG. 601 is a front view of another embodiment of this invention;

[0025] FIG. 602 is yet another embodiment of this invention in partial section;

[0026] FIG. 700 is an exploded view in partial section of an embodiment of this invention;

[0027] FIG. 701 is a view of the embodiment of FIG. 700 in partial section;

[0028] FIG. 702 is yet another embodiment of this invention in partial section;

[0029] FIG. 703 is an exploded view of the embodiment of FIG. 702;

[0030] FIG. 704 is a front view of a stem and adaptor;

[0031] FIG. 705 is an exploded view of the embodiment of 704.

DETAILED DESCRIPTION OF THE INVENTION

[0032] Mass production of brushes using tufts of synthetic cut-to-length filament has been described in a number of patents owned by Tucel Industries, Inc. of Forestdale, Vermont. U.S. Pat. No. 5,165,759 is representative. A number of

related patents are cited therein. The Tucel invention utilizes a stock box in which stacked synthetic cut-to-length filament are housed. The filament are disposed within the box horizontally. A plurality of pickers which are hollow tubes are mounted on a reciprocating base with the pickers also extending horizontally. The pickers enter a vertical side of the stock box and fill with filament.

[0033] The pickers then are withdrawn from the stock box and non-working ends are heated and fused. The surface of a brush block is softened with heat, and the fused ends of the tufts formed in the pickers are pressed onto the brush block so that when they cool the tufts will be mounted thereon.

[0034] An example of such a construction is shown in U.S. Pat. No. 5,077,858 which describes a spike and cleat brush wherein the tufts are mounted on the upper surface of a base which device is then used to remove grass and dirt from spikes and cleats. The tufted device is generally placed on the ground and the upwardly extending working ends of the tufts used to remove the debris.

[0035] While the tufts used for such a cleat and spike cleaner are solid tufts, it is possible to make hollow tufts which are donut shaped in cross section. U.S. Pat. No. 4,009,910 describes a picker having an axially extending spike or pin so that when the picker enters the stock box the tuft formed will be formed around the pin or spike so that when the tuft is fused it will be a hollow tuft having a donut shaped cross section. Hollow tufts are useful for example in dish-washing, and are important in that tufts are formed with less filament.

[0036] The Tucel patent and process of fusing can be modified to machinery for an assembly line instead of the rotary fashion which may be faster in the manufacture of smaller parts.

[0037] With attention to the drawings and FIGS. 100 and 200 in particular, those drawings depict a device of this invention 10 or 10' which uses a collapsible tube 16 or 16' to contain a viscous or thickened material therein. A member 14 or 14' is threaded and is mounted and mounted on the tube 16 or 16'. An opening 20 or 20' is provided so that when the tube 16 or 16' is collapsed the material stored therein will exit through said openings.

[0038] In the embodiment of FIG. 100, a tuft of cut-to-length synthetic filaments 12 having a fused non-working end 12' is mounted on the threaded member 14 surrounding the opening 20. The fused end 12' can be secured to the threaded member 14 by any conventional means. However, when the tube 16 has emptied, the device 10 cannot be refilled. A separate threaded cap 30 is provided to be engaged with threads 14 for protection of the tuft 12 when it is not in use.

[0039] With reference to FIG. 200, the device 10' also uses a squeeze tube 16', and a threaded member 14' which has an opening 20' for dispensing contents of the tube 16' when it is squeezed. In contrast to the embodiment of FIG. 100 a separate cap 18 is provided where upon the tuft 12 with fused ends 12' is mounted on the upper or external end of the cap 18 at the area 24. A separate cap 31 can be mounted on area 24 at groove 33 when the device is not in use.

[0040] Most importantly however if the tuft 12 wears down or becomes caked with dried material the cap 18 can be removed and replaced.

[0041] FIGS. 201 and 202 illustrate a different type of means for securing the tuft 202 to a stem 202'. The tuft 200 is mounted on a cap 204 or 204'. The tuft 200 is fused and mounted on the upper surface of member 206. Cap 204 is

secured to nozzle 202 by a circumferential rib 210 which fits in to internal groove 208. The cap 204 then merely snaps into place when it is mounted on the stem 202.

[0042] In the embodiment of FIG. 202, a pair of circumferential ribs 212 and 214 are provided. When mounted as shown in FIG. 202 the ribs 212 and 214 overlap.

[0043] FIG. 203 shows an embodiment similar to FIG. 200 wherein a squeeze tube 16 with a stem 46 having external threads thereon 40' and internal threads 40". Stem 46 terminates in a pair of openings in a sloped top 17. The external surface of stem 46 at end 17 contains a circumferential elbow 42. When the device of FIG. 203 is assembled threads 40" are engaged with threads 40"". Threads 40 are engaged threads 41 and the elbow 42 is snapped over protrusions 42' in adaptor 19. The end 17 engages the end 17' of adaptor 19, and tuft 12 is formed about a fused end 12' which is turn is mounted at the upper portion 26 of adaptor 19.

[0044] An external protective cap 44 is provided with a circumferential groove 45 in which protrusions 45' seat when the cap is pressed onto the adaptor 19. Finally, when the angled end 17 seats in the angled portion of 17' the outlet will be closed, and when the device is located so that the adaptor 19 moves upwardly from the stem 46, the interior of squeeze tube 16 can be expelled through the adaptor of 19. With intention to the embodiments of FIGS. 300 and 400, an adaptor 50 is provided with a recess end 54. The tuft 52 then is mounted within the recess on its fused non-working end 52'. The opposite end 56 is threaded 56' so that a can, pump, or other container can be threadingly engaged and received in opening 57.

[0045] With attention to FIGS. 500 and 501, typically the can would be provided with a stem 66 which can be standard. A cap 63 is snap-fitted onto the can 60 around the portion 64 or 64' depending on can style. As shown in FIG. 500 the tuft 62 is mounted by the fused end 62' on a portion 64 of adaptor 61. In the embodiment of FIG. 501 the stem and adaptor are a working valve unit. The stem 65 is the working portion of the valve seal 63 and stem 65 when tilted opens holes or openings 69 in the stem 65. This process of a two-pieced construction can be achieved by using a smaller modified head 67. Normally the head is of a larger diameter but when the head 65 is smaller it can be forced through seal 63 from the top 65' for fewer parts and larger brushes.

[0046] In the embodiment of FIG. 501 a two piece valve 67 and 65 is shown. Valve 65 is mounted by the members 63. Reference number 67' illustrates the flow of material upwardly through holes 68 and into the dispensing opening 65'. When the inner valve 65 is rotated the opening 68 will be closed.

[0047] FIGS. 600, 601 and 602 show a pump system. The pump bottle 70 is used by pushing downwardly on lever 71 which opens the bottle by moving actuator 72 down thus forcing the material out of the opening 73. The tuft 75 is mounted by fused end 75' on adaptor end 74. Material from the inside of bottle 70 is then forced through area 73 and into the tuft 75 at 73'.

[0048] The bottle 70 would also include an overcap (not shown). In FIG. 601 the bottle 70 has a replaceable tuft adaptor 77 which can be mounted by threads or with a pop on groove and ridge design as shown in previous described embodiments.

[0049] In FIG. 602 the pump has a replaceable adaptor as in the embodiment of FIG. 601 but with a ball and socket type actuator and stem. The actuator 78 has a female style ball

configuration 79 to which stem 80 can roll or pivot about around 70 and 80. This will allow the end user to be able to use at any given angle limited to swing to swing 82 of actuator 78 and stem 80 but also this embodiment would allow the convenience for manufacturing to be able to make a more ergonomic overcap (not shown) similar to 70' in FIG. 601.

[0050] With attention to FIG. 700 the stem end 100 has a small enough head to be able to press through the seal 101 and cup 102. FIG. 701 is an assembled sectional view of the embodiment of the FIG. 700. It should be noted that the shoulder 103 and seal 101 serve to retain the head in the position shown in FIG. 701. The shoulder 103 and stem 100 dispose between the stem end 100 and the seal 101 act as a valve. In FIGS. 704 and 705 when the stem is tilted an opening is created 601 which permits the passage of fluid within the container. The stem 105 would be surrounded by a tuft with fused end as shown in previous embodiments. As also shown there is a central hole 105 to allow material to go through the head or applicator 106.

[0051] In the embodiment of FIGS. 702 and 703 a standard stem/seal/cup/can with a threaded stem and overcap is shown. In this embodiment a brush with fused tuft would be mounted on top 107.

[0052] As will be obvious to those skilled in the art this invention is not limited to any particular type of container. As described above it can be used on a squeeze tube, a aerosol can, a pump type dispenser, or any other type of container. The material dispensed can be soldering paste/flux, thread sealant, thread protected or thread locking compounds, shaving cream or gels. The material dispensed can be a paste, liquid or a viscous liquid. Also it can be used on compressed air such as provided to clean a computer keyboard. The tufts are however are configured to allow material to flow through and are intended to be mounted surrounding the outlet or outlets opening in the container or adaptor for a container. The tufts can be mounted at the fused end to a container and by use of an adaptor by threads, pop-on style ribbing or simply a press fit.

[0053] It will be readily seen by one of ordinary skill in the art that the present invention fulfills all of the objects set forth above. After reading the foregoing specifications one of ordinary skill in the art will be able to effect various changes, substitutions or equivalents and various other aspects of the invention as broadly disclosed herein. It is therefore intended that the protection granted hereon be limited only by the definition contained in the appended claims and equivalents thereof

1. Method for assembling a brush tuft on a container to dispense the container's contents into said tuft comprising the steps of:

- picking a tuft of cut-to-length synthetic filaments having a working end and a non-working end;
- fusing the non-working end of said tuft;

providing a container having an outlet for dispensing any contents of said container;
mounting said fused end on said outlet.

2. The method of claim 1 wherein a nozzle is provided in said outlet and said tuft is mounted in said nozzle.

3. The method of claim 1 wherein nozzle is provided in said outlet and said tuft is mounted on the external surface of said nozzle.

4. The method of claim 1 wherein a hollow tuft is picked.

5. The method of claim 1 wherein a solid tuft is picked.

6. The method of claim 1 wherein said container is a squeeze tube.

7. The method of claim 1 wherein said container is an aerosol can.

8. The method of claim 1 further comprising providing a pump on said nozzle for dispensing any content of said container through said nozzle.

9. The method of claim 1 wherein the step of mounting comprises: providing an adhesive applying said adhesive between the fused end of said tuft and the external surface of said container.

10. The method of claim 1 wherein the step of mounting comprises mounting the fused tuft end, while hot, directly on the external surface of said container.

11. The method of claim 1 further comprising providing said container with threads surrounding the outlet thereof providing a sleeve adapted to be threadedly received on said outlet threads; and mounting said tuft within said sleeve; threadedly engaging said sleeve on said outlet.

12. The method of claim 1 further comprising providing an adaptor having an upper surface and an open bottom end; mounting said fused tuft end on the upper surface of said adaptor; and mounting said adaptor on said container at said open end.

13. The method of claim 12 further comprising providing at least one circumferential rib surrounding said container outlet and snap fitting the open end of said adaptor over said rib.

14. The method of claim 12 further comprising providing a threaded surface around said nozzle and an internal threaded surface within said adaptor; engaging the threaded surface on said container with the threaded surface on said adaptor.

15. A method for assembling a container having an outlet in the top thereof, in order to dispense the container's contents: providing a nozzle having a top and a bottom; mounting said nozzle in said outlet; providing a valve and mounting said valve by inserting said valve in said nozzle through the top thereof.

16. The method of claim 15 wherein said valve includes a ball and socket actuator.

17. The method of claim 12 wherein said valve includes a ball and socket actuator.

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