

[54] **DISPOSABLE TOILET APPLICATOR**
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 [51] Int. Cl. **A47k 7/03**
 [58] Field of Search **15/104.93, 104.94, 15/118, 210 R, 244, 143, 223**

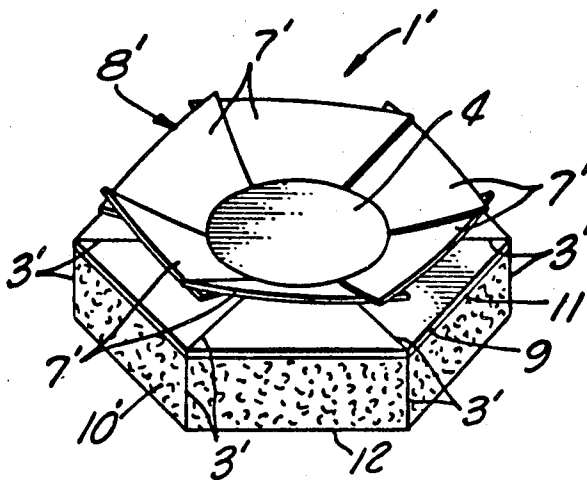
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[57] **ABSTRACT**

This invention teaches a single use, disposable toilet applicator having a dry, porous, regenerated cellulose sponge, with a pair of parallel planar faces. The sponge is compressed normal to a planar face, to minimum size pore openings. A first, thin, water impermeable sheet is completely coplanarly contiguously secured to one planar face of the sponge, and a second, rigid, thin water impermeable sheet completely coplanarly covers the first, water impermeable sheet and is secured over the central bonded area to the first sheet. The compressed sponge volume, the first water impermeable sheet, and the second water impermeable sheet are bonded together in a laminated composite. A multiplicity of incised slit openings extending from the toilet applicator perimeter to the perimeter of the central bonded area form a multiplicity of flexible toilet applicator leaves, which also include foldable applicator handle means.

[56] **References Cited**
UNITED STATES PATENTS
 3,131,410 5/1964 Anderson et al. 15/244 A
 3,142,855 8/1964 Gilchrist 15/210 R
 3,333,292 8/1967 Chase et al. 15/209 R X
FOREIGN PATENTS OR APPLICATIONS
 503,279 6/1951 Belgium 15/244 CH
 1,029,136 4/1958 Germany 15/244 R

6 Claims, 6 Drawing Figures



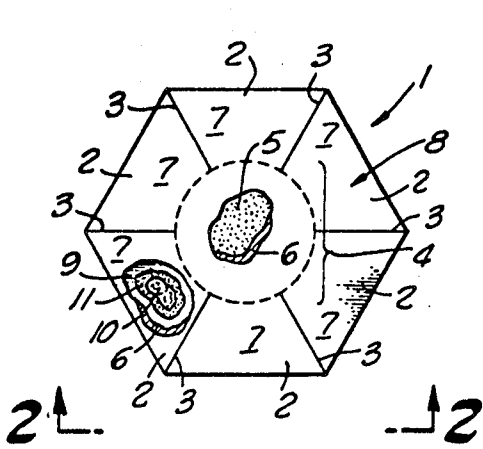


FIG. 1.

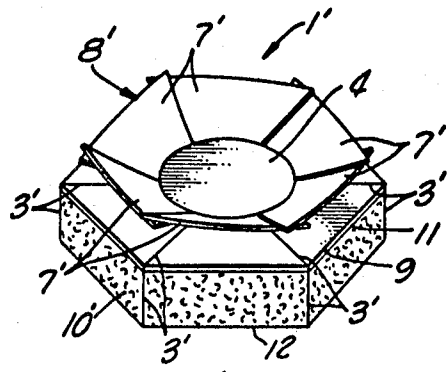


FIG. 4.

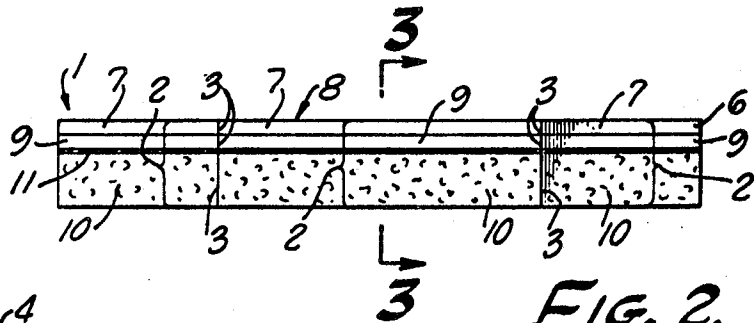


FIG. 2.

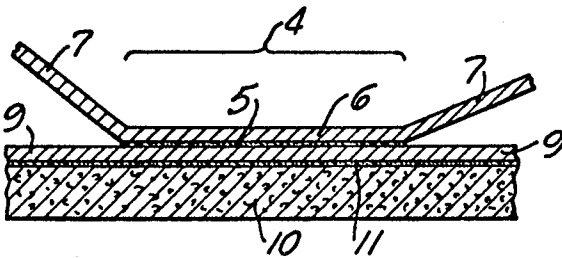


FIG. 3.

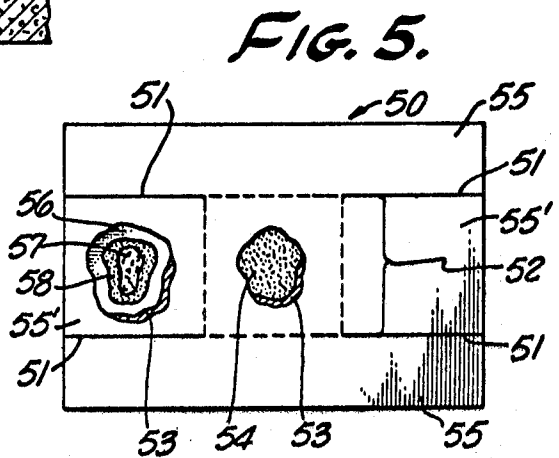


FIG. 5.

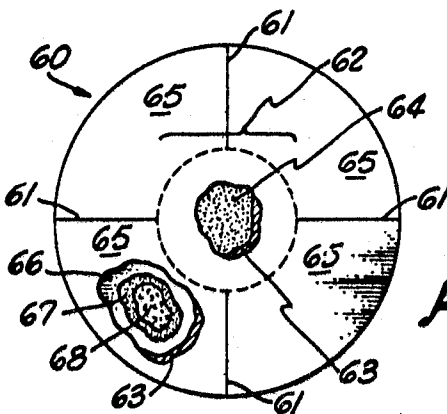


FIG. 6.

DISPOSABLE TOILET APPLICATOR**BACKGROUND OF THE INVENTION**

There is a long, well established usage of a hair bristle shaving brush for the application of warm water-shaving soap foam to faces and other body surfaces, to soften hair prior to shaving.

Low pressure aerosol propellant-foaming soap compositions are also widely manufactured and sold for the rapid formation of soap and detergent foam compositions. Likewise, other toilet compositions are manufactured and dispensed in low pressure, aerosol propellant containers, such as body deodorants, hair treatment compositions, skin treatment compositions and the like.

The above toilet treatment means, bristle brush and soap, or the aerosol containers of toiletry treatment compositions are bulky and not specifically suited or adapted costwise to hygienically dispense a single toilet treatment. They do not economically encourage the treatment means to be disposed of after a single use. The toilet applicator of this invention is a single use, disposable device.

SUMMARY OF THE INVENTION

This invention teaches a disposable single use toilet applicator which can have a solid, dry, water soluble toilet composition uniformly impregnated in a fine pore, regenerated cellulose sponge. The sponge has two parallel planar faces disposed normal to a typical regular hexagonal shape. The sponge is compressed normal to the planar faces, to minimum pore size openings, retaining the typical sponge shape. A first, thin, water impermeable sheet completely covers and is contiguously secured to one planar face of the sponge, and a second rigid, thin water impermeable sheet completely covers and is secured over a central bonded area to the first impermeable sheet.

The compressed sponge volume, the first water impermeable sheet and the second water impermeable sheet together form a laminated composite of three coplanar areas bonded together. A multiplicity of incised slit openings, extending from the toilet applicator perimeter to the central bonded area perimeter, form a multiplicity of flexible toilet applicator leaves, which also include foldable applicator handle means. The toilet applicator leaves impart the very important flexible feel of a hair bristle brush to the single use applicator by conforming to the skin contours on use.

Included in the objects of this invention are:

First, to provide a very compact, inexpensive, flexible toilet composition applicator having means for controlling fluid flow.

Second, to provide a very compact toilet composition applicator in storage, with an adjustable handle means.

Third, to provide simple, inexpensive handle, fluid flow control and flexibility means for a disposable, single use toilet composition applicator.

Fourth, to provide a single use disposable toilet applicator which has the brushing action flexibility of a bristle shaving brush or the like.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects and advantages of my invention will become apparent in the following description, to be read in conjunction with the accompanying drawing.

FIG. 1 is a plan view, with partial sectional views, of the toilet applicator illustrating the disposable toilet applicator in storage prior to use.

FIG. 2 is an enlarged elevational view through 2—2 of FIG. 1, illustrating the laminated composite structure of the compact toilet applicator in storage prior to use.

FIG. 3 is a sectional partial view through 3—3 of FIG. 2, modified from FIG. 2 to illustrate further details of the invention.

FIG. 4 is perspective elevational view of the applicator of FIG. 1, expanded and modified for use by a consumer.

FIG. 5 is a plan view of another disposable toilet applicator of this invention, illustrating the handle means construction and the laminated composite construction.

FIG. 6 is another plan view of a further disposable toilet applicator of this invention, illustrating the handle means construction and the laminated composite construction.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1 in detail, the regular hexagon shaped disposable toilet applicator is first shown in plan view, with each single toilet applicator flexible leaf 2 shown handle component uppermost. The multiple incised slit openings 3 extend completely through the planar laminated composite toilet applicator structure, normal to the planar hexagonal shaped applicator shown. The incised slit openings 3 bisect the hexagon vertices, and the slit openings 3 extend from the hexagon vertices to the perimeter of the central bonded area 4. The perimeter of the central bonded area 4 is indicated by the dotted circle. The partial sectional view in the central bonded area 4 illustrates the bonding layer 5 which bonds to the second, rigid, thin water impermeable sheet 6, from which the single leaf handles 7 are formed. The sum of all the single leaf handles 7 form the foldable toilet applicator handle means 8.

The second partial sectional view in one leaf handle 7 illustrates that each single leaf handle 7 is not bonded or secured to the underlying water impermeable paper board multiple leaf first sheet 9. The multiple leaf first sheet 9 completely covers and is contiguously bonded on one face to the further underlying dry, compressed, porous regenerated cellulose sponge 10 by adhesive layer 11. Thus, the hexagonal shaped cellulose sponge 10 is coplanarly bonded by the adhesive layer 11 to the hexagon shaped, multiple leaf first sheet 9, and the first sheet 9 is bonded over the central bonded area 4 to the paper board sheet 6, to form the basis of the foldable toilet applicator handle means 8.

Referring to FIGS. 2 and 3 together, further details of the foldable toilet applicator handle means 8 and the fluid flow controlling first sheet 9 are shown in elevational views. FIG. 2 illustrates in enlarged elevational view the disposable toilet applicator 1 through 2—2 of FIG. 1. The flat compact nature of the applicator 1 in storage is illustrated, showing three single leaf handles 7, of the foldable toilet applicator handle means 8. The water impermeable paper board first sheet 9 is shown coplanarly bonded by the thin adhesive bond layer 11 to the dry, compressed, porous regenerated cellulose sponge 10, which has a pair of parallel planar faces. The two incised slit openings 3 are shown extending

through the layers 6, 9, 10 and 11 of the applicator 1, normal to the planar applicator structure, and forming flexible applicator leaves 2.

Further structure details of applicator 1 are illustrated in FIG. 3, being an enlarged sectional fragmentary view through 3—3 of FIG. 2. The two single leaf handles 7, formed of the second sheet 6, are shown in a partially raised position preparatory to gripping the handles 7 with the users' fingers. The central bonded area 4, shown bracketed, is secured to the underlying first sheet 9 by the first bonding layer 5. The first sheet 9 is secured to the cellulose sponge 10 by the second bonding layer 11.

Bonding layer 5 is not shown in FIG. 2, due to its small thickness on the drawing scale. It does exist in applicator 1. The bonding layers 5 and 11 secure together the laminated composite applicator structure when the applicator 1, or the like, is immersed in the hot water used to regenerate the applicator compressed sponge structure 10, or the like. Since the human fingers cannot in general withstand water immersion temperatures above 120° F, the bonding layers 5 and 11 must at least form strong tensile and shear bonds, or the like, in this temperature region. Hence, the bonding layers 5 and 11 may typically be formed by thermally fusing polyethylene or polyvinyl chloride coatings on paper board stock, and sealing the paper board stock together. Other standard resins, adhesives, or the like may also be utilized to form the bonding layers 5 and 11.

A plastic coated paper board stock 0.015 to 0.025 inch thick is suitable for the first sheet 9 and the second sheet 6. The components 9 and 6 may also be a suitable 100 percent plastic sheet stock, of types which comply with the water temperature immersion requirements, such as high density polyethylene, polypropylene, or rigid polyvinyl chloride.

Referring to FIG. 4 in detail, the disposable toilet applicator 1 is shown in perspective elevational view, modified to toilet applicator 1'. The foldable toilet applicator handle means 8 of FIG. 1 is now bent at the perimeter of the central bonded area 4 to form multiple single leaf handles 7'. The handles 7' are each folded inward to form the modified folded toilet applicator handle means 8'. The multiple leaf first sheet 9 is shown completely covering and contiguous to the wetted, porous regenerated cellulose sponge 10', which is now expanded to its wetted full volume. The incised slit openings 3' provide flexibility for each separate toilet applicator leaf.

The multiple leaf first sheet 9 provides the very important function of directing the flow of aqueous regenerated toilet composition. When the applicator 1 is immersed in preferably warm water, shaken to remove excess water, and massaged on the skin to spread a toilet composition impregnated in the sponge 10, such as soap solution or foam, the first sheet 9 channels the solution or foam so as to exit from the sponge 10' substantially only on the unbonded sponge face 12. Thus the toilet solution or foam is directed to flow as is usual with conventional shaving brush usage. The multiple incised slit openings 3', or the like, are disposed adjacent a central bonded area 4, or the like, to provide a controlled applicator flexibility comparable to that of a conventional shaving brush.

In FIGS. 5 and 6, further modifications of toilet applicators are shown in plan view, foldable toilet applicator handle means uppermost. In FIG. 5 a planar rectangular

shaped disposable toilet applicator 50 is shown, having multiple incised slit openings 51 which extend from the applicator 50 perimeter to perimeter of the central bonded area 52. The perimeter of the central bonded area 52 is outlined by the dotted lines of the square. The partial sectional view in the area 52 illustrates that the water impermeable, rigid second layer sheet 53 is bonded by the first bonding layer 54 which lies under the sheet 53. The first bonding layer 54 is equivalent to the first bonding layer 5 of FIGS. 1 and 3. The further construction similarity with applicator 1 of FIGS. 1, 2, 3 is illustrated by the second partial sectional view in the single toilet applicator leaf 55'. The uppermost rigid, water impermeable second layer sheet 53 is shown not bonded to the next underlying water impermeable rigid, first layer sheet 56. The sheet 56 is shown bonded to the dry, compressed, porous regenerated cellulose sponge 57 by the second bonding layer 58. The second bonding layer 58 is equivalent to the second bonding layer 11 of FIGS. 1, 2, 3, in structure and function, with respect to securing the sponge 57. The four toilet applicator leaves 55, 55, 55', 55' shown in FIG. 5 are fully equivalent in composite structure, although the pair of leaves 55, 55 differ in planar shape from the pair of leaves 55', 55'.

The circular, planar viewed disposable toilet applicator 60 of FIG. 6 has the four incised slit openings 61 radially extending from the perimeter of the applicator 60 to the perimeter of the central bonded area 62. The central bonded area 62 is inside the inscribed area of the dotted line circle. The partial sectional view inside the central bonded area 62 illustrates the uppermost, water impermeable, second layer sheet 63 secured by the first bonding layer 64. The further construction similarity with the applicators 1 and 50 is illustrated by the second partial sectional view in one of the four toilet applicator leaves 65. The second layer sheet 63 is shown not bonded to the next underlying water impermeable, first sheet 66. The first sheet 66 is completely contiguously secured completely over the circular planar area of the applicator 60, by the second bonding layer 67 to the underlying next dry compressed, porous regenerated cellulose sponge 68. Sponge 68 has a pair of parallel planar faces.

The toilet applicators 1, 50 and 60 have planar, dry compressed, porous regenerated cellulose sponge volumes, each with pairs of parallel planar faces. Each applicator 1, 50 and 60 has a water impermeable, thin first sheet completely covering and coplanarly secured to one planar face of the sponge volume. A rigid, thin water impermeable, second sheet is coplanar and equal in area to the first sheet and the planar face of the sponge volume, and is secured over a central bonded area to the first sheet. A multiplicity of incised slit openings are uniformly disposed from the applicator perimeter inwardly to the central bonded area perimeter. The multiplicity of incised slit openings extend completely through the multiple ply of the first thin sheet, the second thin sheet and the planar faces of the sponge volume, to form multiple, flexible applicator leaves. The second sheet, bonded to the first sheet at the central bonded layer, can be foldably disposed at the central bonded area perimeter to form a folded applicator handle means for the toilet applicator. The handle means is included in the multiple flexible toilet applicator leaves.

It is preferred that the second sheet be rigid, yet foldable at the perimeter of the central bonded area perimeter. The first sheet is also preferably rigid, but it can be flexible. Paper board stock of 0.015-0.025 inch thickness typically qualifies as rigid stock sheet.

Although the illustrations incorporate dry, compressed regular hexagonal, circular and rectangular shaped sponge volumes, other sponge shapes can be used, such as a regular polygonal planar sponge area, a square area, triangular area, heart-shaped, or specific irregular shapes. In general the relative thickness of the wet expanded sponge in the applicator will be a small fraction compared to the sponge planar area width and length dimensions. The dry sponge, impregnated with a reconstitutable toilet composition, can be compressed in one dimension to form a flattened planar sheet having minimum pore dimensions. Typically, the dry, expanded sponge can be a fine pore regenerated cellulose or viscose cellulose structure having pores ranging from 0.5 to 2-3 mm. diameter and the like. A fine pore sponge is preferable in terms of holding imbibed water. A dry, expanded sponge density can be 0.06 g/cc or the like.

For purposes of this invention, the solvents water, or dilute ethyl alcohol solutions in water, are considered to be the solvents useful for forming the toilet or cosmetic solutions.

As examples of foaming shaving compositions, a typical applicator 1, 50, 60, or the like, may have an expanded planar sponge volume before compression, or after being wet with warm water, of 2 x 2 x 3/8 inch. The single applicator is typically impregnated with 0.4 to 0.6 g. of a dry detergent or soap composition. The expanded sponge volume is readily compressed in one dimension normal to the 2 x 2 inch planar area, after impregnation with the detergent or soap composition, and drying the sponge.

In order to minimize the heat energy required to dry the sponge applicator material, after impregnation with a detergent or soap colloidal solution, the impregnating colloidal solution is used at as high a detergent or soap concentration as possible. Some typical shaving foam forming compositions are as follows:

I

Sodium isethionate salt (85% of coconut acid ester)	50 parts
Stearic acid	25 parts
Water	500 parts

Heat to 170° F with stirring and impregnate sponge volume at the rate of 0.6 g. solids/applicator sponge size 1 1/2 x 1 1/2 x 3/8 inch.

II

Sodium N-methyl (45%) - coconut oil acid Taurate	80 parts
Stearic acid	10 parts
Water	500 parts

Heat to 170° F with stirring and impregnate a 3/8 inch thick sheet of expanded applicator sponge at the rate of 0.4 g. solids/applicator planar area.

III

Sodium stearate (commercial soap grade)	50 parts
Stearic acid	25 parts
Water	

Heat to 170° F and impregnate sponge as in Example II.

IV

5 Sodium lauryl sulfate USP	50 parts
Stearic acid	10 parts
Water	500 parts

Heat to 170° F and impregnate as in Example I.

Dry all impregnated sponge. Compress dry impregnated sponge volumes.

Obviously many modifications and variations in my disposable toilet applicator may be made in the light of my teachings. It is therefore understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

I claim:

1. A disposable toilet applicator comprising:

- a. a porous regenerated cellulose sponge volume having a pair of parallel planar faces,
- b. a first, thin, water impermeable sheet equal in area and contiguously secured to one of said pair of parallel planar faces of said sponge volume,
- c. a second, thin, rigid, water impermeable sheet coplanarly equal in area to said first sheet, and secured to said first sheet over a central bonded area,
- d. the multiple equivalent areas of said sponge volume, said first sheet and said second sheet together form a laminated composite, and
- e. a multiplicity of incised slit openings in said laminated composite, each separately extending from the external perimeter of said laminated composite to the perimeter of said central bonded area, forming a multiplicity of flexible toilet applicator leaves, which include a foldable applicator handle means.

2. A disposable toilet applicator of claim 1, wherein said sponge volume has a pair of regular hexagonal shaped parallel planar faces.

3. A disposable toilet applicator of claim 1, wherein said first, thin, water impermeable sheet is rigid.

4. A disposable toilet applicator of claim 1, wherein a dry, porous, regenerated cellulose sponge volume is compressed normal to said pair of parallel planar faces to minimum size pore openings.

5. A disposable toilet applicator structure comprising:

- a. a laminated composite comprising a regenerated cellulose sponge volume having a pair of opposed planar faces; a first, thin, rigid, water impermeable sheet equivalent in area to a sponge volume planar face and completely secured over a first sheet face to one said sponge volume planar face; and a second, thin, rigid, water impermeable sheet equivalent in area to said first sheet and secured over a central bonded area to a second sheet face of said first sheet; and
- b. a multiplicity of incised slit openings in said laminated composite, each slit opening separately extending from the external perimeter of said laminated composite to the perimeter of said central bonded area, forming a multiplicity of flexible toilet applicator leaves, including a foldable applicator handle means.

6. A disposable toilet applicator of claim 5 wherein said laminated composite structure is regular hexagonal shaped.

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