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(54) **BRUSH DEVICE FOR APPLYING A TANNING FORMULATION**

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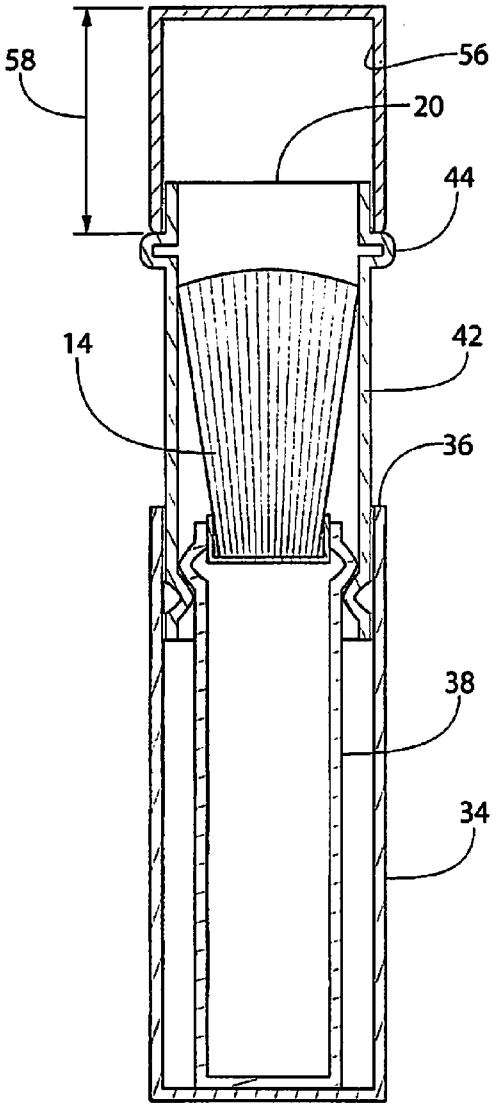
(57) **ABSTRACT**

A brush device is disclosed having specific dimensions especially suited for use in applying a tanning formulation to the face and body of an individual. The dimensions are such that the time required to apply the formulation using the brush device is decreased compared to conventional brush devices while at the same time, undesirable streaking and uneven application are avoided. A handle structure of the brush device is disclosed which is configured to house the brush and protect the bristles after usage.



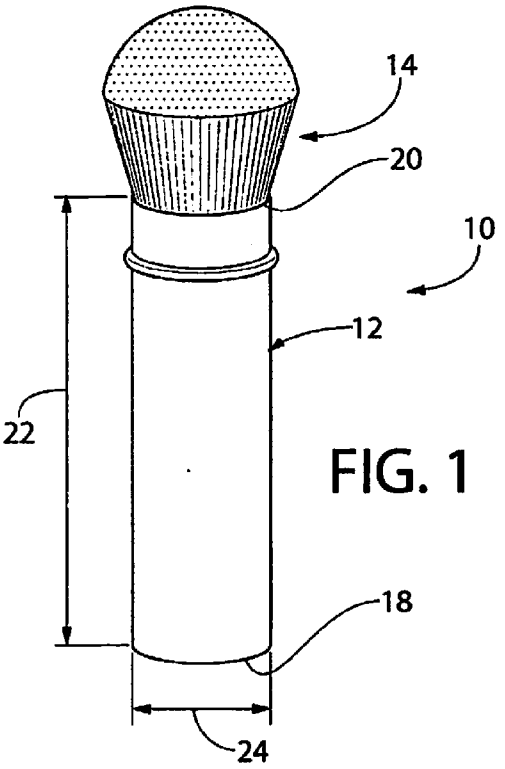


FIG. 1

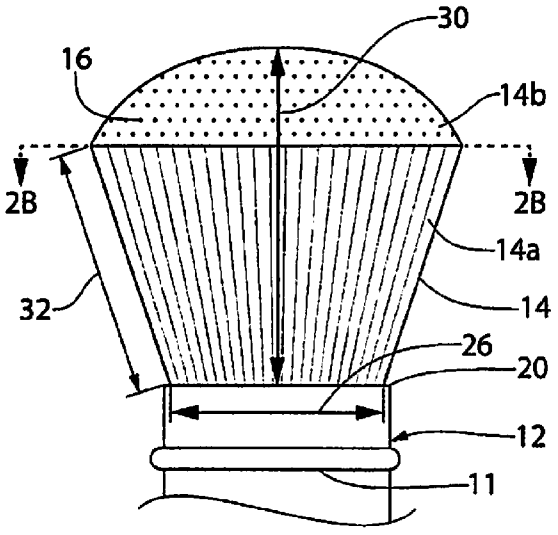


FIG. 2A

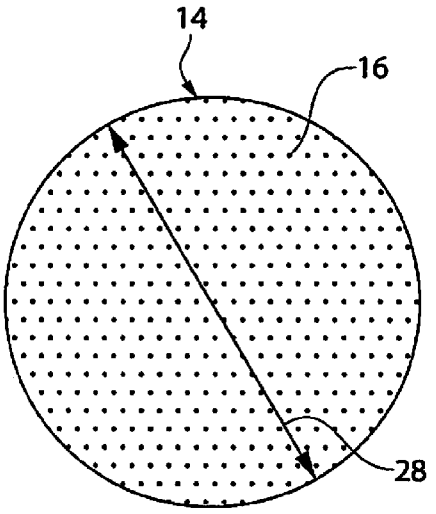


FIG. 2B

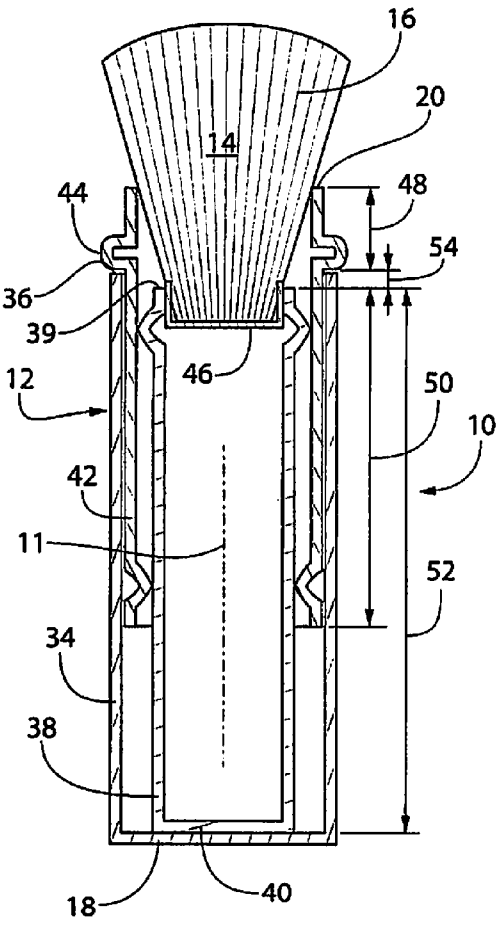

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FIG. 3

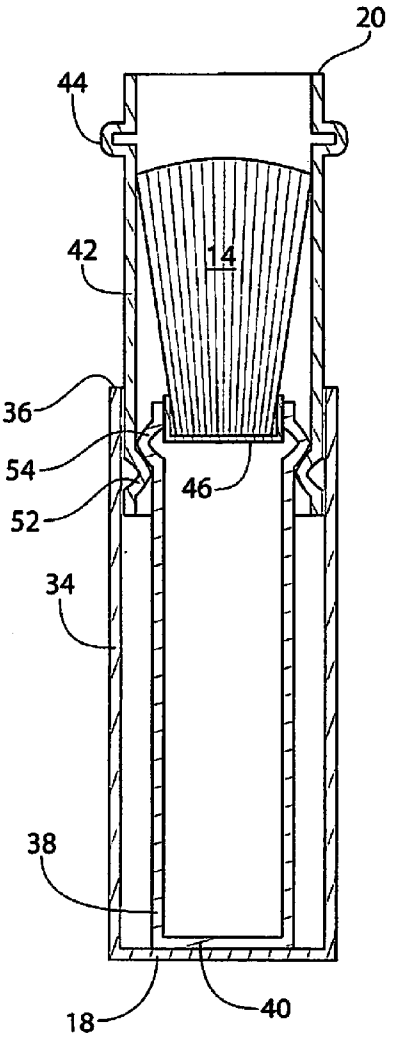
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FIG. 4

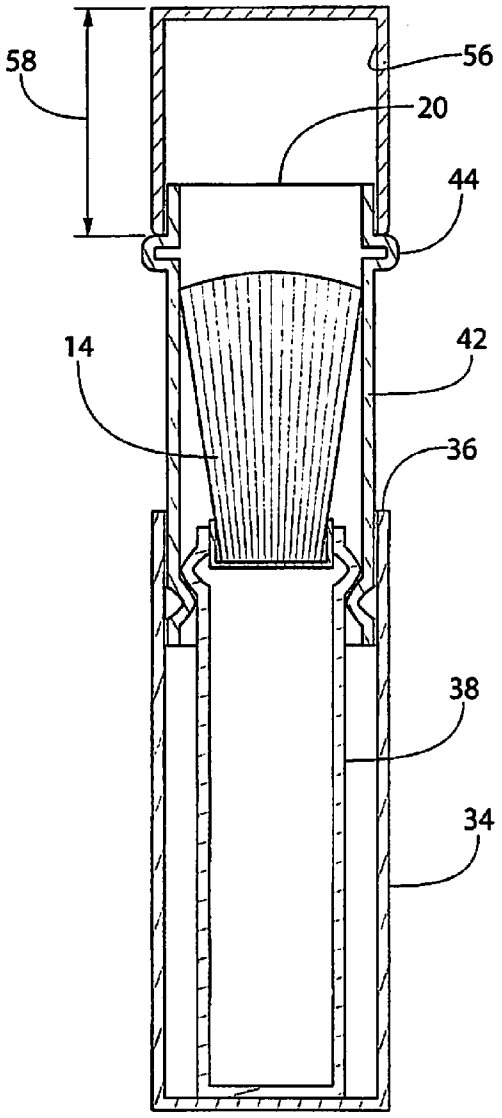

FIG. 5

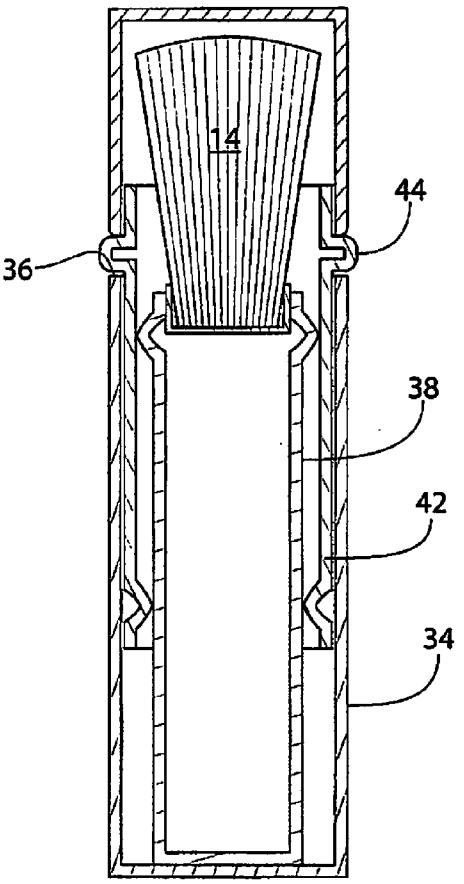

FIG. 6

BRUSH DEVICE FOR APPLYING A TANNING FORMULATION

BACKGROUND OF THE INVENTION

[0001] This invention relates generally to the application of sunless tanning formulations to the face and body of an individual and, more particularly, to a brush device especially designed for such applications.

[0002] The popularity of sunless tanning has risen since the 1960s after exposure to the sun and other tanning methods, such as tanning beds, were linked to the incidence of skin cancer. Sunless tanning and bronzing formulations are safer and faster than, and can achieve a tan at least comparable to that obtained by, exposure of the face and body of an individual to the sun.

[0003] Sunless tanning formulations generally fall into two categories, namely, sunless tanners that actually darken the skin and then fade as dead skin cells slough off in the normal course (usually within 3-7 days), and bronzers that wash off like regular makeup. Most sunless tanners contain dihydroxyacetone, a sugar that interacts with proteins in the epidermis, the outermost layer of the skin, to produce a darker skin color. Sunless tanners come in various forms. A gel is particularly advantageous form for sunless tanning formulations since gels generally dry faster and are easier to apply than other forms, such as spray tanners which are more difficult to use, and lotions which sometimes leave a sticky feel. Bronzers darken the skin on a temporary basis. Once applied to the body and face of an individual, a tan is created that can be washed off with soap and water. Bronzers also come in several forms, including powders, liquids and gels.

[0004] With the development of sun tanning formulations in liquid, powder and gel form, issues have arisen with the use of conventional devices for applying the formulations to the skin. Conventional techniques, such as conventional brushes and mitts, generally require a long time for application of the formulation to large areas of the body. Certain areas of the body, such as areas of the back and legs, often cannot be easily reached, if at all. Leverage to apply appropriate pressure of brushes often cannot be obtained using conventional mitts and/or brushes. For these reasons, the tan produced by these techniques and other conventional methods, are often streaked and/or uneven.

SUMMARY OF THE INVENTION

[0005] Accordingly, it is an object of the present invention to provide a new and improved device for applying sunless tanning formulations to the body and face of an individual.

[0006] Another object of the present invention is to provide a new and improved brush device for applying sunless tanning formulations to the body and face of an individual.

[0007] Still another object of the present invention is to provide an improved brush device for applying sunless tanning formulations to the body and face of an individual that is faster than conventional techniques.

[0008] A further object of the present invention is to provide a new and improved brush device for applying sunless tanning formulations to the body and face of an individual which results in a uniform, streak-free tan.

[0009] A still further object of the present invention is to provide a brush device satisfying all of the above objects and which is convertible to a closed configuration after use in which the brush of the device is protected and which is compact.

[0010] It has been found that a brush device having a certain configuration and certain specific dimensions in accordance with the invention satisfies all of the above-stated objects. Briefly, in accordance with the present invention, these and other objects are attained by providing a brush device comprising an elongate cylindrical handle structure having a length in the range of between about 4¼ inches and 5¼ inches and a diameter in the range of between 1¼ inches and 2 inches, and a brush formed by a plurality of bristles that extend from an end of the handle structure. The brush has circular transverse cross-sections of varying size, the largest circular transverse cross-section having a diameter of between 2¼ inches and 2¾ inches. A brush device having such a construction can be used to apply a sunless tanning formulation in gel, liquid or powder form more quickly than other conventional techniques and at the same time provide a streak-free and uniform tan. The construction also allows an individual to reach all areas of his or her body and provides the user with good leverage during the application of the formulation to hard-to-reach areas.

[0011] According to another aspect of the invention, the handle structure is configured to conveniently house and protect the brush after use in a compact profile. In particular, the handle structure includes an outer cylindrical case, an inner cylindrical brush holder situated within the outer case, and an intermediate cylindrical case situated between the outer case and the inner brush holder which is slidable between a retracted position in which the brush is exposed, and an extended position in which the brush is covered by the intermediate cylindrical case. A cylindrical cover is connectable to the intermediate cylindrical case while in its extended position, whereupon the intermediate cylindrical case can be moved to its retracted position, whereupon the brush becomes covered within the cylindrical cover providing a compact package while protecting the brush.

DESCRIPTION OF THE DRAWINGS

[0012] A more complete appreciation of the present invention and many of the attendant advantages thereof will be readily understood by reference to the following detailed description when considered in connection with the accompanying drawings in which:

[0013] FIG. **1** is a perspective view of a brush device in accordance with the invention;

[0014] FIG. **2**A is a front elevation of the brush and an upper portion of the intermediate cylindrical case of the brush device of FIG. **1**;

[0015] FIG. **2**B is a section view taken along line B-B of FIG. **2**A;

[0016] FIG. **3** is a longitudinal section view of the brush device of FIG. **1**;

[0017] FIG. **4** is a longitudinal section view of the brush device of FIG. **1** in a first stage of being closed after use;

[0018] FIG. **5** is a longitudinal section view of the brush device of FIG. **1** including a cover in a second stage of being closed after use; and

[0019] FIG. **6** is a longitudinal section view of the brush device of FIG. **1** in its closed configuration.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0020] Referring now to the drawings wherein like reference characters designate identical or corresponding parts throughout the several views, and more particularly to FIGS. **1** and **2**, a brush device **10** in accordance with the invention is illustrated in an open configuration ready for use. The brush device **10** includes an elongate cylindrical handle structure, generally designated **12**, having a longitudinal axis **11** (FIG. **2**A) and a brush **14** formed of a plurality of bristles **16**. The elongate cylindrical handle structure **12** has a first closed longitudinal end **18** and a second open longitudinal end **20**.

[0021] The length **22** of the handle structure is in the range of between about 4¼ inches and 5¼ inches, most preferably about 4¾ inches. The diameter **24** of the cylindrical handle structure is in the range of between about 1¼ inches and 2 inches, preferably about 1½ inches.

[0022] Referring to FIG. **2** brush **14** extends from the second open and **20** of the handle structure **12** has a lower part **14***a* having a frusto-conical shape and an upper part **14***b* having a substantially spherical section shape. Cross-sections of brush **14** have circular shapes in respective planes transverse to the longitudinal axis **11** of the handle structure **12**. The transverse cross-section of brush **14** at the second open end **20** of the handle structure has a diameter **26** in the range of between about 1¼ and 2 inches, preferably about 1½ inches. The transverse cross-section of brush **14** at its widest part, i.e., at the major base of the frusto-conical part **14***b* (FIG. **2**B) has a diameter **28** in the range of between about 2¼ inches and 2¾ inches, preferably about 2½ inches. The height **30** of brush **14** measured from the open end **20** of the handle structure **12**, is in the range of between about 1⅝ inches and 2⅛ inches, preferably about 1⅞ inches. The length **32** of the frusto-conical edge of the lower frusto-conical part **14***b* of brush **14**, measured from the open end **20** of the handle structure **12**, the range of between about 1¼ inches and 1¾ inches, preferably about 1½ inches.

[0023] It has been found that a brush device having a combination of certain ones, or all, of the characteristics described above, in addition to reducing the time required to apply sunless tanning formulations in liquid, gel and/or powder form to the face and body, eliminates or at least reduces streaking and promotes uniformity of application in hard-to-reach areas as a result of the increased leverage provided by the brush device. Larger or smaller brushes connected to narrower, wider, longer and/or shorter handle structures result in increased streaking due to insufficient or excess pressure of the brush on the skin and insufficient leverage.

[0024] Because of the large size of the brush of a brush device in accordance with the invention, it is desirable to provide a construction which will protect the bristles from damage after the brush is used. At the same time, it is desirable to provide a compact packaging for the brush device, not only in view of the large size of the brush, but also in view of the large size of the handle structure. To these ends, referring to FIGS. **3-6**, the handle structure of a brush device **10** in accordance with the invention includes a plurality of elements formed of appropriate material, such as aluminum, or plastic, which enables the brush device to be converted to a closed configuration having approximately the same overall height as the brush device in its open configuration with the brush gathered and housed in a protective cap.

[0025] The handle structure **12** includes an outer cylindrical case **34** having a closed end constituting the first closed end **18** of the handle structure **12** and an open end **36**, an inner cylindrical brush holder **38** situated coaxially within the outer cylindrical case **34** having a closed end **40** fixed, such as by adhesive, to the inner surface of the closed end **18** of the outer cylindrical case **34** so as to fix the inner cylindrical brush holder **38** within the outer cylindrical case **34**, and an open-ended intermediate cylindrical case **42** situated coaxially and slidably between the outer cylindrical case **34** and the inner cylindrical brush holder **38**. As described below, one of the open ends of the intermediate cylindrical case is situated outside of the outer cylindrical case and constitutes the second open end **20** of handle structure **12**.

[0026] A circumferentially extending shoulder **44** projects outwardly from the intermediate cylindrical case **42** at a location close to but spaced from the open end **20** of the intermediate cylindrical case **42** such that when the intermediate cylindrical case **42** is moved as far as possible into the outer cylindrical case **34** (as seen in FIG. **3**), the shoulder **44** engages the open end **36** of the outer cylindrical case **34** preventing further inward movement of the intermediate cylindrical case **42** into the outer cylindrical case **34**. As noted above, in this position, the open end of the intermediate cylindrical case **42** proximate to shoulder **44** is situated outside of the outer cylindrical case **34** and constitutes the second open end **20** of the handle structure **12**.

[0027] The ends of the bristles **16** of brush **14** are affixed by epoxy or the like in a brush-holding cup **46** which is fixed at the upper end of the inner cylindrical brush holder **38** within the outer cylindrical case **34**. The bristles **16** extend through the open end **20** of the handle structure constituted by the open end of the intermediate cylindrical case **42** and have a length and configuration such as to form brush **14** with the configuration and dimensions described above.

[0028] The open end **20** of handle structure **12** constituted by the open end of the intermediate case **42** projects a distance **48** of about ¾ inch from the open end **36** of the outer case **34**. The length **50** of the intermediate case **42** is about 3⅞ inches. The length **52** of the inner brush holder **38** is about 3¼ inches and the open end **39** of the brush holder **38** at which the brush-holding cup **46** is fixed is situated within the outer case **34** and spaced a distance **54** of about ¾ inch from the open end **36** of the outer case **34**.

[0029] The handle structure **12** described above is constructed to conveniently house and protect the brush after use in a compact profile. Referring to FIG. **4** in conjunction with FIG. **3**, in a first stage of closing the brush device **10** after it has been used to apply a tanning formulation, the intermediate cylindrical case **42** is slid outwardly from within the outer cylindrical case **34** until an inwardly extending circumferential shoulder **52** formed at the inner end of the intermediate cylindrical case **42** engages an outwardly extending circumferential shoulder **54** formed at the top end of the inner cylindrical brush holder **38**. The engagement of shoulders **52**, **54** limits the extent of sliding movement of the intermediate cylindrical case **42** out of the outer cylindrical case **34**. The extent of movement of the intermediate cylindrical case **42** is sufficient such that the bristles **16** of brush **14** are gathered together by the intermediate case **42** as it moves outwardly and within the interior of the intermediate cylindrical case **42**. The bottom edge of cover **56** abuts the shoulder **44** of the intermediate cylindrical case.

[0030] Referring to FIG. **5**, in the next stage of closing the brush device **10**, with the intermediate cylindrical case **42** in its outer position, a cylindrical cover **56** is connected to the

open end **20** of the intermediate cylindrical case **42**. Small protrusions are formed on the upper end of the intermediate case to provide a friction fit of the cover **56** onto the intermediate case **42**. The bottom edge of cover **56** abuts the shoulder **44** of the intermediate cylindrical case.

[0031] Referring to FIG. **6**, in the final stage of closing the brush device **10**, the intermediate cylindrical case **42** is slid back into the outer cylindrical case **34** until the shoulder **44** engages the open end **36** of the outer cylindrical case **34** but not so long as to be cumbersome. The length **58** of the cylindrical cover **56** is sufficient to provide a space for receiving and housing the gathered brush **14** in its interior as the intermediate cylindrical case **42** slides into the outer cylindrical case **34**. The length of the cylindrical cover is in the range of between about 3⅞ inches and 4⅛ inches, preferably about 4 inches. In this manner, the brush device is closed in a compact package having about the same length as the brush device in the open configuration with the bristles **16** of brush **14** being protected.

[0032] The outer cylindrical case **34**, inner cylindrical brush holder **38** and intermediate cylindrical case **42** are thus configured such that the intermediate cylindrical case **42** is slidable between a first retracted position (FIG. **3**) in which the open end **20** thereof is situated outside of the outer cylindrical case a first distance from the open end of the outer case and constitutes the second longitudinal end of the handle structure, and a second extended position (FIG. **4**) in which the open end **20** thereof is situated outside of the outer cylindrical case a second distance from said open end of said outer case which is greater than the first distance. The brush **14** is housed within the intermediate case **42** when the intermediate case **42** is in said second extended position (FIG. **4**). The cylindrical cover **56** has a first closed end and a second open end, the second open end being configured to be connected to the open end **20** of said intermediate cylindrical case **42** when the intermediate cylindrical case is in the second extended position (FIG. **5**). The brush **14** becomes housed within the cylindrical cover **56** when the intermediate cylindrical case **42** is moved to the first retracted position (FIG. **6**).

[0033] Obviously, numerous modifications and variations of the embodiment of the brush device are possible in the light of the above teachings. It is therefore to be understood that within the scope of the claims appended hereto, the invention may be practiced otherwise than as specifically disclosed herein.

1. A brush device for applying a tanning formulation to the face and body of an individual, comprising:

an elongate cylindrical handle structure having a longitudinal axis, a first longitudinal end and a second longitudinal end, said handle structure having a length in the range of between about 4¼ inches and 5¼ inches and a diameter in the range of between about 1¼ inches and 2 inches; and

a plurality of bristles having portions extending from said second end of said handle structure forming a brush, said brush having circular cross-sections in respective planes transverse to said longitudinal axis of said handle structure, said transverse cross-section of said brush at said second end of said handle structure having a diameter in the range of between about 1¼ inches and 2 inches, and wherein a diameter of a largest transverse cross-section of said brush is in the range of between about 2¼ inches and 2¾ inches.

2. A brush device as recited in claim **1** wherein the height of the brush is in the range of between about 1⅝ inches and 2⅛ inches.

3. A brush device as recited in claim **2** wherein said brush has a frusto-conical shape from a base to said largest transverse cross-section and a spherical section shape from said largest transverse cross-section to a top of said brush.

4. A brush device as recited in claim **1** wherein the length of said handle structure is about 4¾ inches, said diameter of said handle structure is about 1½ inches, said diameter of said largest transverse cross-section is about 2½ inches and the height of said brush is about 1⅞ inches.

5. A brush device as recited in claim **1** wherein said handle structure comprises:

an outer cylindrical case having a closed end constituting said first longitudinal end of said handle structure and an open end;

an inner cylindrical brush holder situated coaxially within said outer cylindrical case and fixed thereto;

an intermediate cylindrical case situated coaxially between said outer cylindrical-case and said inner cylindrical brush holder, said intermediate cylindrical case having an open end constituting said second longitudinal end of said handle structure;

said outer cylindrical case, inner cylindrical brush holder and intermediate cylindrical case configured such that said intermediate cylindrical case in slidable between a first retracted position in which said open end thereof is situated outside of said outer cylindrical case a first distance form said open end of said outer case and constitutes said second longitudinal end of said handle structure, and a second extended position in which said open end thereof is situated outside of said outer cylindrical case a second distance from said open end of said outer case which is greater than said first distance, and wherein said rush is housed within said intermediate case when said intermediate case is in said second extended position.

A brush device as recited in claim **6** wherein said the length of said cylindrical cover is in the range of between about 3⅞ inches and 4⅛ inches.

6. A brush device as recited in claim **5** further comprising a cylindrical cover having a first closed end and a second open end, said second open end configured to be connected to said open end of said intermediate cylindrical case when said intermediate cylindrical case is in said second extended position, and wherein said rush is housed within said cylindrical cover when said intermediate cylindrical case is moved to said first retracted position.

7. A brush device as recited in claim **6** wherein said the length of said cylindrical cover is in the range of between about 3⅞ inches and 4⅛ inches.

* * * * *