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(71) Applicant: **7 days ok Habit, LLC**
Kasugai City, Aichi 487-0035 (JP)

(72) Inventor: **SHIRAKI, Noriyo**
Kasugai City, Aichi 487-0035 (JP)

(74) Representative: **Fenix Legal KB**
Brahegatan 44
114 37 Stockholm (SE)

(54) TOOTH BRUSH, AND METHOD OF MANUFACTURING THEREOF

(57) To provide a tooth brush suitable for a user which can suppress excessive brushing pressure and control the brushing pressure to an appropriate brushing pressure at the time of use, and a method of manufacturing thereof.

A tooth brush (1) includes a first member (11) having a handle section (2), and a second member (12) having a head section (3) provided with a brush (31) and a neck section (4). The first member (11) and the second member (12) are configured to be attachable/detachable. A length (C) of the handle section (2) of the first member (11) is a length set based on a length of a palm of a user.

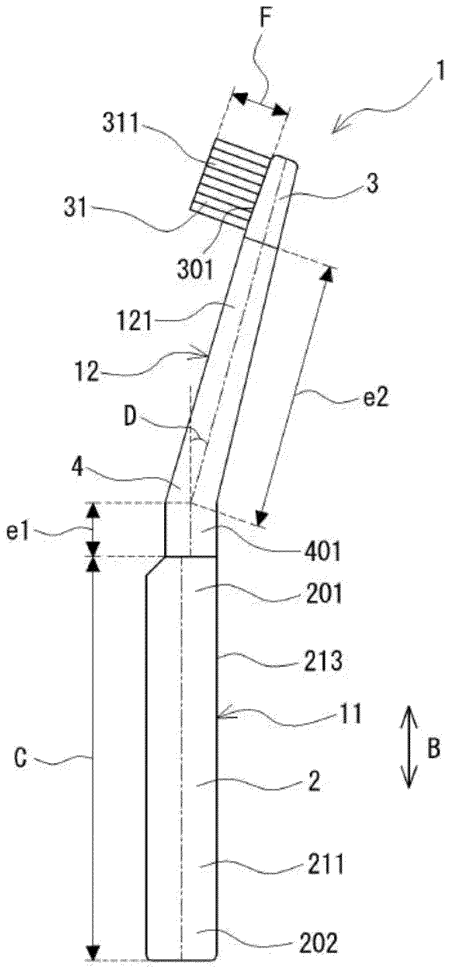

Fig. 3

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Description

Technical Field

[0001] The present invention relates to a tooth brush and a method of manufacturing thereof.

Background Art

[0002] Conventionally, there are various tooth brushes that suppress excessive brushing pressure at the time of use in order to prevent symptoms such as gingivitis and periodontitis in the oral cavity. For example, Patent Literature 1 discloses a tooth brush provided with a spring member between a head member and a handle member, the spring member being configured to be detachable from both members and the spring member being elastically deformable.

Citation List

Patent Literature

[0003] Patent Literature 1: Japanese Utility Model Registration No. 3227573

Summary of Invention

Technical Problem

[0004] The tooth brush is used by being held by a user's hand, but the size of the hand varies depending on the gender, age, height, and the like of the user. However, conventional tooth brushes are roughly classified into types such as those for children and those for adults. Therefore, the tooth brush is not adapted to the user, and it cannot be said that the excessive brushing pressure at the time of use can be sufficiently suppressed.

[0005] The present invention provides a tooth brush suitable for a user which can suppress excessive brushing pressure and control the brushing pressure to an appropriate brushing pressure at the time of use, and a method of manufacturing thereof.

Solution to Problem

[0006] A tooth brush according to one aspect of the present invention includes a first member having a handle section, and a second member having a head section provided with a brush and a neck section. The first member and the second member are configured to be attachable/detachable. A length of the handle section of the first member is a length set based on a length of a palm of a user.

[0007] According to the above tooth brush, the length of the handle section of the first member, which is a portion held by the user's hand, is a length set based on the length of the palm of the user. Therefore, the length of the handle section is a length suitable for the user, so that the user can easily hold the handle section. As a result, it is possible to suppress an excessive brushing pressure and control the brushing pressure to an appropriate brushing pressure at the time of use (at the time of brushing teeth).

[0008] In addition, the first member and the second member are configured to be attachable/detachable. Therefore, the first member having the handle section customized for the user can be attached to the second member. In addition, the first member and the second member can be replaced according to the user. This facilitates customization according to the user.

[0009] In the above-described tooth brush, the back end portion of the handle section of the first member may have a triangular cross-section orthogonal to the longitudinal direction of the handle section. In this case, the back end portion of the handle section can be held by three fingers, the thumb, the index finger, and the middle finger. As a result, the excessive brushing pressure is further suppressed and it becomes easy to control the brushing pressure to an appropriate brushing pressure at the time of use.

[0010] Furthermore, the length of the neck section of the second member is a length set based on the length of the middle finger of the hand of the user. In this case, the length of the neck section becomes a length suitable for the user, so that it is easy to use for the user. As a result, the excessive brushing pressure is further suppressed and it becomes easy to control the brushing pressure to an appropriate brushing pressure at the time of use.

[0011] In addition, the second member may include a head section, and may have an inclined portion inclined toward the rear surface side of the tooth brush so as to form an angle of greater than or equal to 10° and less than or equal to 30° with respect to the longitudinal direction of the handle section. Therefore, the head section provided with the brush can be inclined with respect to the handle section. As a result, the excessive brushing pressure is further suppressed and it becomes easy to control the brushing pressure to an appropriate brushing pressure at the time of use.

[0012] Furthermore, the length of the brush of the head section of the second member may be a length set based on a condition in the oral cavity of the user. In this case, the brush of the head section is suited to the condition in the oral cavity of the user. Therefore, in addition to the first member, the second member can also be customized for the user. In addition, it is possible to further exhibit the effect of suppressing the excessive brushing pressure and controlling the brushing pressure to an appropriate brushing pressure at the time of use.

[0013] Furthermore, the hardness of the brush of the head section of the second member may be a hardness set based on a condition in the oral cavity of the user. In this case, the brush of the head section is suited to the condition in the oral cavity of the user. Therefore, in addition to the first member, the second member can

also be customized for the user. In addition, it is possible to further exhibit the effect of suppressing the excessive brushing pressure and controlling the brushing pressure to an appropriate brushing pressure at the time of use.

[0014] A method of manufacturing a tooth brush according to another aspect of the present invention includes a measurement step of measuring a length of a palm of a user, a first preparation step of preparing a first member having a handle section, a second preparation step of preparing a second member having a head section provided with a brush and a neck section, and an attachment step of attaching the first member and the second member. A length of the handle section of the first member prepared in the first preparation step is a length set based on the length of the palm of the user measured in the measurement step.

[0015] Furthermore, according to the method of manufacturing the tooth brush, in the first preparation step, the first member having the handle section which is a portion held by the user's hand is prepared. At this time, the length of the handle section is a length set based on the length of the palm of the user measured in the measurement step. Therefore, the length of the handle section is a length suitable for the user, so that the user can easily hold the handle section. As a result, it is possible to obtain the tooth brush in which excessive brushing pressure can be suppressed and the brushing pressure can be controlled to an appropriate brushing pressure at the time of use.

[0016] Furthermore, in the first preparation step, the first member having the handle section can be easily customized according to the user. Then, in the attachment step, the first member customized for the user is attached to the second member. Thus, the tooth brush customized for the user can be easily obtained.

[0017] In the method of manufacturing the tooth brush described above, the back end portion of the handle section of the first member may have a triangular cross-section orthogonal to the longitudinal direction of the handle section. In this case, it is possible to obtain the tooth brush in which excessive brushing pressure can be further suppressed and the brushing pressure can be easily controlled to an appropriate brushing pressure at the time of use.

[0018] Furthermore, in the measurement step, the length of the middle finger of the hand of the user is further measured, and the length of the neck section of the second member prepared in the second preparation step may be a length set based on the length of the middle finger of the hand of the user measured in the measurement step. In this case, the length of the neck section becomes a length suitable for the user, so that it is easy to use for the user. As a result, it is possible to obtain the tooth brush in which excessive brushing pressure can be further suppressed and the brushing pressure can be easily controlled to an appropriate brushing pressure at the time of use.

[0019] In addition, the second member may include a head section, and may have an inclined portion inclined toward the rear surface side of the tooth brush so as to form an angle of greater than or equal to 10° and less than or equal to 30° with respect to the longitudinal direction of the handle section. In this case, it is possible to obtain the tooth brush that can effectively exhibit the effects of suppressing excessive brushing pressure and controlling the brushing pressure to an appropriate brushing pressure.

[0020] Furthermore, the length of the brush of the head section of the second member prepared in the second preparation step is a length set based on the condition in the oral cavity of the user. In this case, the brush of the head section is suited to the condition in the oral cavity of the user. Therefore, in addition to the first member, the second member can also be easily customized for the user.

[0021] Furthermore, the hardness of the brush of the head section of the second member prepared in the second preparation step is a hardness set based on the condition in the oral cavity of the user. In this case, the brush of the head section is suited to the condition in the oral cavity of the user. Therefore, in addition to the first member, the second member can also be easily customized for the user.

Brief Description of Drawings

[0022]

Fig. 1 is a front view of a tooth brush of the present embodiment.

Fig. 2 is a rear view of the tooth brush of the present embodiment.

Fig. 3 is a side view of the tooth brush of the present embodiment.

Fig. 4 is a cross-sectional view taken along line A-A of Fig. 1.

Fig. 5 is an explanatory view illustrating a state in which a first member and a second member of the tooth brush of the present embodiment are separated.

Fig. 6 is an explanatory view illustrating a method of using the tooth brush of the present embodiment.

Fig. 7 is an explanatory view illustrating a length of a palm and a length of a middle finger of a hand of a user to be measured in a measurement step in the method of manufacturing a tooth brush of the present embodiment.

Fig. 8 is a side view of a tooth brush of another embodiment.

Description of Embodiments

[0023] Hereinafter, embodiments of the present invention will be described with reference to the drawings.

[0024] As illustrated in Figs. 1 to 3, a tooth brush 1 of the present embodiment is used when brushing teeth, and

includes two members, a first member 11 and a second member 12. As materials of the first member 11 and the second member 12, various synthetic resins, wood, and the like can be used.

[0025] The first member 11 constitutes a back side portion of the tooth brush 1. As a material of the first member 11, various synthetic resins, wood, and the like can be used. The first member 11 has a handle section 2 serving as a portion of the handle of the tooth brush 1. The handle section 2 is a portion where the user holds the tooth brush 1 by hand. In the present embodiment, the first member 11 includes only the handle section 2. A distal end portion 201 of the handle section 2 is coupled to the second member 12.

[0026] The handle section 2 is formed in a triangular prism shape. The handle section 2 has three side surfaces, a first side surface 211, a second side surface 212, and a third side surface 213. Among these, the third side surface 213 is formed on the rear surface side of the tooth brush 1. Here, the rear surface side of the tooth brush 1 is a side opposite to a side (front surface side) of a head section 3 on which a brush 31 to be described later is provided.

[0027] As illustrated in Fig. 4, the handle section 2 has a triangular cross-section orthogonal to the longitudinal direction (axial direction) B of the handle section 2 as a whole including a back end portion 202. In the present embodiment, the handle section 2 has an equilateral triangular cross-section orthogonal to the longitudinal direction B of the handle section 2. Three corner portions formed by three side surfaces (first side surface 211, second side surface 212, and third side surface 213) of the handle section 2 are chamfered R surfaces (curved surfaces).

[0028] As illustrated in Fig. 3, a length C of the handle section 2 is a length in the longitudinal direction (axial direction) B of the handle section 2. The length C of the handle section 2 is a length set based on the length of the palm of the user. That is, the length of the handle section 2 is adjusted to match the length of the palm of the user. The setting of the length C of the handle section 2 will be described later.

[0029] As illustrated in Figs. 1 to 3, the second member 12 constitutes a tip side portion of the tooth brush 1. As a material of the second member 12, various synthetic resins, wood, and the like can be used. The second member 12 includes a head section 3 and a neck section 4. In the present embodiment, the second member 12 integrally constitutes the head section 3 and the neck section 4. The head section 3 is provided at a distal end portion of the second member 12. The neck section 4 is provided between the head section 3 and the first member 11 (handle section 2). A back end portion 401 of the neck section 4 is coupled to the first member 11.

[0030] The second member 12 has an inclined portion 121 inclined toward the rear surface side of the tooth brush 1 with respect to the longitudinal direction B of the handle section 2. The inclined portion 121 is formed of a portion of the second member 12 excluding the back end portion 401 of the neck section 4. That is, the inclined portion 121 is configured to include the head section 3 and a portion of the neck section 4 excluding the back end portion 401.

[0031] The inclined portion 121 is bent and extended from the back end portion 401 of the neck section 4 extending in the longitudinal direction B of the handle section 2 toward the rear surface side of the tooth brush 1. The inclined portion 121 is formed in a thin plate shape having a predetermined thickness. The inclined portion 121 is inclined toward the rear surface side of the tooth brush 1 so as to form an angle D with respect to the longitudinal direction B of the handle section 2. In the present embodiment, the inclination angle D of the inclined portion 121 is 20°. Furthermore, the inclination angle D of the inclined portion 121 is constant over the entire inclined portion 121. Note that the inclination angle D of the inclined portion 121 can be set within a range of greater than or equal to 10° and less than or equal to 30°.

[0032] The head section 3 is provided with a brush surface 301. The brush surface 301 is formed on the front surface side of the tooth brush 1. Similarly to the inclined portion 121, the brush surface 301 is inclined so as to form an angle D with respect to the longitudinal direction B of the handle section 2.

[0033] The brush surface 301 of head section 3 is provided with a brush 31. The brush 31 includes a plurality of bristle bundles 311. The plurality of bristle bundles 311 are implanted in a plurality of circular recesses provided on the brush surface 301. The bristle bundle 311 is configured by bundling a plurality of bristles having a predetermined thickness. In the present embodiment, the brush 31 is provided in the entire region of the brush surface 301 of the head section 3 (the bristle bundle 311 is implanted). As a material of the brush 31, nylon, saturated polyester resin (PBT), or the like can be used.

[0034] As illustrated in Fig. 3, the length E of the neck section 4 is set based on the length of the middle finger of the hand of the user. That is, the neck section 4 is adjusted to a length corresponding to the length of the middle finger of the hand of the user. Note that the setting of the length E of the neck section 4 will be described later.

[0035] In the present embodiment, the length E of the neck section 4 is a length (E=e1+e2) obtained by adding an axial length e1 of the back end portion 401 of the neck section 4 and an axial length e2 of the portion of the neck section 4 in the inclined portion 121.

[0036] A length F of the brush 31 of the head section 3 is a length set based on a condition in the oral cavity of the user. The length F of the brush 31 is a length from the brush surface 301 of the head section 3. That is, length F of brush 31 refers to a length (height) of a portion exposed from the brush surface 301 of head section 3.

[0037] The hardness of the brush 31 of the head section 3 is a hardness set based on a condition in the oral cavity of the user. The hardness of the brush 31 can be adjusted by the thickness of bristles of the brush 31. The

hardness of the brush 31 becomes soft by thinning the thickness of the bristles of the brush 31, and the hardness of the brush 31 becomes hard by thickening the thickness of the bristles of the brush 31.

[0038] That is, the length F and the hardness of the brush 31 of the head section 3 are adjusted to a length and a hardness corresponding to a condition in the oral cavity of the user. Note that the setting of the length F and the hardness of the brush 31 will be described later.

[0039] As illustrated in Fig. 5, a coupling recess 22 for coupling the second member 12 is provided at the distal end portion 201 of the handle section 2 of the first member 11. The coupling recess 22 is provided so as to be recessed from the distal end face of the distal end portion 201 of the handle section 2.

[0040] The back end portion 401 of the neck section 4 of the second member 12 is provided with a coupling projection 41 for coupling the first member 11. The coupling projection 41 is provided so as to project out from the back end face of the back end portion 401 of the neck section 4.

[0041] The first member 11 and the second member 12 can be attached and detached by inserting the coupling projection 41 of the neck section 4 of the second member 12 into the coupling recess 22 of the handle section 2 of the first member 11 or pulling out the coupling projection 41 of the neck section 4 of the second member 12 from the coupling recess 22 of the handle section 2 of the first member 11. That is, the first member 11 and the second member 12 are configured to be attachable/detachable. Note that other conventionally known mechanisms or the like may be used for the coupling mechanism and the attaching/detaching mechanism between the first member 11 and the second member 12.

[0042] Next, a method of using the tooth brush 1 of the present embodiment will be described.

[0043] As illustrated in Fig. 6, the user brushes his/her teeth with his/her dominant hand (right hand in Fig. 6) holding the back end portion 202 of the handle section 2 of the tooth brush 1.

[0044] Specifically, at the back end portion 202 of the handle section 2 of the tooth brush 1, the thumb of the dominant hand supports the first side surface 211, the index finger supports the third side surface 213, and the middle finger supports the second side surface 212. Then, the teeth are brushed in a state where the back end portion 202 of the handle section 2 of the tooth brush 1 is held by three fingers of the thumb, the index finger, and the middle finger of the dominant hand.

[0045] Next, a method of manufacturing (customizing) the tooth brush 1 according to the present embodiment will be described.

[0046] First, a measurement step is performed. In the measurement step, as illustrated in Fig. 7, a length g1 of the palm of the dominant hand (the hand to hold the tooth brush 1, the right hand in Fig. 7) of the user and a length g2 of the middle finger of the hand are measured. The length g1 of the palm of the user is a length (g1=G-g2) obtained by subtracting the length g2 of the middle finger of the hand from the length of the hand (so-called hand length) G of the user. In other words, the length G of the hand of the user is a length (G=g1+g2) obtained by adding the length g1 of the palm of the hand of the user and the length g2 of the middle finger of the hand of the user. Note that the length G of the hand of the user is a distance from the tip of the middle finger to the wrinkle of the wrist.

[0047] Next, a first preparation step of preparing the first member 11 is performed. A length C of the handle section 2 of the first member 11 prepared in the first preparation step is a length set based on the length g1 of the palm of the user measured in the measurement step. That is, the length of the handle section 2 is selected according to the length of the palm of the user, and the first member 11 having the handle section 2 of the selected length is prepared. The first member 11 is thereby customized for the user.

[0048] Here, the length C of the handle section 2 is preferably the same as the length g1 of the palm of the user. The length C of the handle section 2 may be the same length as the length g1 of the palm of the user, or the length may be adjusted in a stepwise manner based on the length g1 of the palm of the user.

[0049] In the present embodiment, the length C of the handle section 2 is 75 mm when the length g1 of the palm of the user is greater than 70 mm and less than or equal to 75 mm, 80 mm when the length g1 is greater than 75 mm and less than or equal to 80 mm, 85 mm when the length g1 is greater than 80 mm and less than or equal to 85 mm, 90 mm when the length g1 is greater than 85 mm and less than or equal to 90 mm, 95 mm when the length g1 is greater than 90 mm and less than or equal to 95 mm, 100 mm when the length g1 is greater than 95 mm and less than or equal to 100 mm, and 105 mm when the length g1 is greater than 100 mm and less than or equal to 105 mm.

[0050] Next, a second preparation step of preparing the second member 12 is performed. A length E (=e1+e2) of the neck section 4 of the second member 12 prepared in the second preparation step is a length set based on the length g2 of the middle finger of the hand of the user measured in the measurement step. That is, the length of the neck section 4 is selected according to the length of the middle finger of the hand of the user, and the second member 12 having the neck section 4 of the selected length is prepared. The second member 12 is thereby customized for the user.

[0051] Here, the length E of the neck section 4 is preferably the same as the length g2 of the middle finger of the hand of the user. The length E of the neck section 4 may be the same length as the length g2 of the middle finger of the hand of the user, or the length may be adjusted in a stepwise manner based on the length g2 of the middle finger of the hand of the user.

[0052] In the present embodiment, the length E of the neck section 4 is 55 mm when the length g2 of the middle finger of the hand of the user is greater than 50 mm and

less than or equal to 55 mm, 60 mm when the length g2 is greater than 55 mm and less than or equal to 60 mm, 65 mm when the length g2 is greater than 60 mm and less than or equal to 65 mm, 70 mm when the length g2 is greater than 65 mm and less than or equal to 70 mm, 75 mm when the length g2 is greater than 70 mm and less than or equal to 75 mm, 80 mm when the length g2 is greater than 75 mm and less than or equal to 80 mm, and 85 mm when the length g2 is greater than 80 mm and less than or equal to 85 mm.

[0053] Furthermore, the length F of the brush 31 of the head section 3 of the second member 12 prepared in the second preparation step is a length set based on the condition in the oral cavity of the user. Moreover, the hardness of the brush 31 of the head section 3 of the second member 12 prepared in the second preparation step is a hardness set based on the condition in the oral cavity of the user. The hardness of the brush 31 can be adjusted by the thickness of bristles of the brush 31.

[0054] That is, in the second preparation step, the length and the hardness of the brush 31 of the head section 3 of the second member 12 are selected in accordance with the condition in the oral cavity of the user, and the second member 12 having the selected length and hardness of the brush 31 is prepared. The second member 12 is thereby customized for the user.

[0055] Here, examples of the condition in the oral cavity of the user include, for example, exudative gingivitis, adolescent gingivitis, juvenile periodontitis, mild periodontitis, moderate periodontitis, high degree periodontitis, post-surgical treatment (tooth extraction or the like), periodontitis, and dentin hypersensitivity.

[0056] In the present embodiment, the length F of the brush 31 is 9 mm when the condition in the oral cavity of the user is exudative gingivitis, and is 8 mm when the symptom in the oral cavity of the user is high degree periodontitis or after surgical treatment (tooth extraction etc.). In addition, regarding the hardness of the brush 31, the thickness of the brush 31 is set to 5 mil to be hard when the condition in the oral cavity of the user is the exudative gingivitis, and the thickness of the brush 31 is set to 4 mil to be soft after the surgical treatment (tooth extraction or the like), when the symptom in the oral cavity of the user is the high degree periodontitis or dentin hypersensitivity.

[0057] Next, an attachment step of attaching the first member 11 and the second member 12 is performed. In the attachment step, the coupling projection 41 of the neck section 4 of the second member 12 is inserted into the coupling recess 22 of the handle section 2 of the first member 11 to attach the first member 11 and the second member 12. As a result, the tooth brush 1 customized for the user can be obtained.

[0058] As described above, according to the method of manufacturing the tooth brush 1 of the present embodiment, the tooth brush 1 customized for the user can be obtained. For example, when the child is in the mixed dentition period, the baby teeth and the permanent teeth coexist, so that the tooth brush 1 for self-brushing and the tooth brush 1 for guardian's finishing can be customized according to the state.

[0059] For example, in the tooth brush 1 for self-brushing, the length C of the handle section 2 is 85 mm based on the length g1 of the palm of the user (the child himself/herself), and the length E of the neck section 4 is 65 mm based on the length g2 of the middle finger of the hand of the user. The length F of the brush 31 and the thickness (hardness) of the bristles are set to 9 mm and 5 mil, respectively. Furthermore, in the tooth brush 1 for guardian's finishing, the length C of the handle section 2 is 90 mm based on the length g1 of the palm of the user (guardian), and the length E of the neck section 4 is 70 mm based on the length g2 of the middle finger of the hand of the user. The length F of the brush 31 and the thickness (hardness) of the bristles are set to 8 mm and 4 mil, respectively.

[0060] Next, operations and effects of the tooth brush 1 of the present embodiment and a method of manufacturing (customizing) the same will be described.

[0061] According to the tooth brush 1 of the present embodiment, the length C of the handle section 2 of the first member 11, which is a portion held by the user's hand, is a length set based on the length g1 of the palm of the user. Therefore, the length C of the handle section 2 is a length suitable for the user, so that the user can easily hold the handle section 2. As a result, it is possible to suppress an excessive brushing pressure and control the brushing pressure to an appropriate brushing pressure at the time of use (at the time of brushing teeth).

[0062] In addition, the first member 11 and the second member 12 are configured to be attachable/detachable. Therefore, the first member 11 having the handle section 2 customized for the user can be attached to the second member 12. In addition, the first member 11 and the second member 12 can be replaced according to the user. This facilitates customization according to the user.

[0063] In the tooth brush 1 of the present embodiment, the back end portion 202 of the handle section 2 of the first member 11 has a triangular cross-section orthogonal to the longitudinal direction B of the handle section 2. Therefore, the back end portion 202 of the handle section 2 can be held by three fingers, the thumb, the index finger, and the middle finger. As a result, the excessive brushing pressure is further suppressed and it becomes easy to control the brushing pressure to an appropriate brushing pressure at the time of use.

[0064] In addition, the second member 12 includes the head section 3 and includes an inclined portion 121 inclined toward the rear surface side of the tooth brush 1 so as to form an angle (angle D) of 20° with respect to the longitudinal direction B of the handle section 2. Therefore, the head section 3 provided with the brush 31 can be inclined with respect to the handle section 2. As a result, the excessive brushing pressure is further suppressed and it becomes easy to control the brushing pressure to an appropriate brushing pressure at the time of use.

[0065] Furthermore, the length E of the neck section 4 of the second member 12 is a length set based on the length g2 of the middle finger of the hand of the user. Therefore, the length E of the neck section 4 becomes a length suitable for the user, thereby facilitating use by the user. As a result, the excessive brushing pressure is further suppressed and it becomes easy to control the brushing pressure to an appropriate brushing pressure at the time of use.

[0066] Moreover, the length F and the hardness (hair thickness) of the brush 31 of the head section 3 of the second member 12 are length and hardness set based on the condition in the oral cavity of the user. The brush 31 of the head section 3 is thus suited to the condition in the oral cavity of the user. Therefore, in addition to the first member 11, the second member 12 can also be customized for the user. In addition, it is possible to further exhibit the effect of suppressing the excessive brushing pressure and controlling the brushing pressure to an appropriate brushing pressure at the time of use.

[0067] Furthermore, according to the method of manufacturing the tooth brush 1 of the present embodiment, in the first preparation step, the first member 11 having the handle section 2 which is a portion held by the user's hand is prepared. At this time, the length C of the handle section 2 is a length set based on the length g1 of the palm of the user measured in the measurement step. Therefore, the length C of the handle section 2 is a length suitable for the user, so that the user can easily hold the handle section 2. As a result, it is possible to obtain the tooth brush 1 in which excessive brushing pressure can be suppressed and the brushing pressure can be controlled to an appropriate brushing pressure at the time of use.

[0068] Furthermore, in the first preparation step, the first member 11 having the handle section 2 can be easily customized according to the user. Then, in the attachment step, the first member 11 customized for the user is attached to the second member 12. Thus, the tooth brush 1 customized for the user can be easily obtained.

[0069] In addition, in the method of manufacturing the tooth brush 1 of the present embodiment, the length E of the neck section 4 of the second member 12 prepared in the second preparation step is set to a length set based on the length g2 of the middle finger of the hand of the user measured in the measurement step. Therefore, the length E of the neck section 4 becomes a length suitable for the user, thereby facilitating use by the user. As a result, it is possible to obtain the tooth brush 1 in which excessive brushing pressure can be further suppressed and the brushing pressure can be easily controlled to an appropriate brushing pressure at the time of use.

[0070] The length F and the hardness (hair thickness) of the brush 31 of the head section 3 of the second member 12 prepared in the second preparation step are length and hardness set based on the condition in the oral cavity of the user. The brush 31 of the head section 3 is thus suited to the condition in the oral cavity of the user. Therefore, in addition to the first member 11, the second member 12 can also be easily customized for the user.

(Other Embodiments)

[0071] It is needless to say that the present invention is not limited to the above embodiment and can be implemented in various modes within a scope not deviating from the present invention.

(1) In the above embodiment, the handle section 2 of the first member 11 has a triangular cross-section orthogonal to the longitudinal direction B of the handle section 2 as a whole including the back end portion 202, but at least the back end portion of the handle section may have a triangular cross-section orthogonal to the longitudinal direction of the handle section.

(2) In the above embodiment, the inclined portion 121 is provided in the second member 12, but for example, as illustrated in Fig. 8, the head section 3 and the neck section 4 may be provided so as to extend linearly in the longitudinal direction B of the handle section 2 without providing the inclined portion in the second member 12. In this case, the length E of the neck section 4 is the length in the axial direction of the neck section 4.

(3) In the above embodiment, a part of the second member 12, specifically, a portion of the second member 12 excluding the back end portion 401 of the neck section 4 is configured as the inclined portion 121, but the entire second member may be configured as the inclined portion.

(4) In the above embodiment, the inclination angle D of the inclined portion 121 of the second member 12 is constant over the entire inclined portion 121, but the inclination angle of the inclined portion may be changed partially or in a stepwise manner. For example, the inclination angle may be changed between the head section (brush surface) and the neck section.

(5) In the above embodiment, the head section 3 and the neck section 4 of the second member 12 are integrally formed, but the head section and the neck section may be configured by separate members. Furthermore, when the head section and the neck section are configured by separate members, the head section and the neck section may be configured to be attachable/detachable.

(6) In the above embodiment, the brush 31 is provided in the entire region of the brush surface 301 of the head section 3, but the brush may be provided in a partial region of the brush surface of the head section. Furthermore, the shape, type, material, and the like of the brush provided on the brush surface may be variously changed. At this time, the change may be made based on a condition in the

oral cavity of the user.

(7) The functions of one component in the above embodiment may be distributed to a plurality of components, or the functions of a plurality of components may be integrated into one component. Furthermore, a part of the configuration of the above embodiment may be omitted. In addition, at least a part of the configuration of the above embodiment may be added to or replaced with the configuration of another embodiment described above. Note that all aspects included in the technical idea specified from the wording described in the Claims are embodiments of the present invention.

Reference Signs List

[0072]

1	tooth brush
2	handle section
3	head section
4	neck section
11	first member
12	second member
31	brush

Claims

1. A tooth brush (1) comprising:

a first member (11) having a handle section (2); and

a second member (12) having a head section (3) provided with a brush (31) and a neck section (4); **characterized in that**

the first member (11) and the second member (12) are configured to be attachable/detachable;

a back end portion of the handle section (2) of the first member (11) has a triangular cross-section orthogonal to a longitudinal direction of the handle section (2), and has three side surfaces to be supported by a thumb, an index finger, and a middle finger of a hand of a user;

the tooth brush (1) is configured to brush teeth in a state where the three side surfaces of the back end portion of the handle section (2) of the first member (11) are held with three fingers of the thumb, the index finger, and the middle finger of the hand of the user; and

a length of the handle section (2) of the first member (11) is a length selected from a plurality of set lengths of the handle section (2) set at predetermined intervals, and is a second set length when a length of a palm of the user exceeds a first set length of the handle section (2) and is less than or equal to the second set length (however, the second set length is longer than the first set length by the predetermined interval).

2. The tooth brush (1) according to claim 1, **characterized in that**

a length of the neck section (4) of the second member (12) is a length selected from a plurality of set lengths of the neck section (4) set at predetermined intervals, and is a second set length when a length of the middle finger of the hand of the user exceeds a first set length of the neck section (4) and is less than or equal to the second set length (however, the second set length is longer than the first set length by the predetermined interval).

3. The tooth brush (1) according to claim 1 or 2, **characterized in that** the second member (12) includes the head section (3), and includes an inclined portion inclined toward a rear surface side of the tooth brush (1) to form an angle of greater than or equal to 10° and less than or equal to 30° with respect to a longitudinal direction of the handle section (2).

4. A method of manufacturing a tooth brush (1), **characterized in that**

the tooth brush (1) includes a first member (11) having a handle section (2), and a second member (12) having a head section (3) provided with a brush (31) and a neck section (4); the first member (11) and the second member (12) are configured to be attachable/detachable;

a back end portion of the handle section (2) of the first member (11) has a triangular cross-section orthogonal to a longitudinal direction of the handle section (2), and has three side surfaces to be supported by a thumb, an index finger, and a middle finger of a hand of a user;

the tooth brush (1) is configured to brush teeth in a state where the three side surfaces of the back end portion of the handle section (2) of the first member (11) are held with three fingers of the thumb, the index finger, and the middle finger of the hand of the user; the method including:

a measurement step of measuring a length of a palm of a user,

a first preparation step of preparing the first member (11),

a second preparation step of preparing the second member (12) and

an attachment step of attaching the first member (11) and the second member (12); and

a length of the handle section (2) of the first member (11) prepared in the first preparation step is a length selected from a plurality of set lengths of the handle section (2) set at predetermined intervals, and is a second

set length when a length of a palm of the user exceeds a first set length of the handle section (2) and is less than or equal to the second set length (however, the second set length is longer than the first set length by the predetermined interval).

5. The method of manufacturing the tooth brush (1) according to claim 4, **characterized in that** in the measurement step, a length of the middle finger of the hand of the user is measured, and a length of the neck section (4) of the second member (12) prepared in the second preparation step is a length selected from a plurality of set lengths of the neck section (4) set at predetermined intervals, and is a second set length when the length of the middle finger of the hand of the user exceeds a first set length of the neck section (4) and is less than or equal to the second set length (however, the second set length is longer than the first set length by the predetermined interval).

6. The method of manufacturing the tooth brush (1) according to claim 4 or 5, **characterized in that** the second member (12) includes the head section (3), and includes an inclined portion inclined toward a rear surface side of the tooth brush (1) to form an angle of greater than or equal to 10° and less than or equal to 30° with respect to a longitudinal direction of the handle section (2).

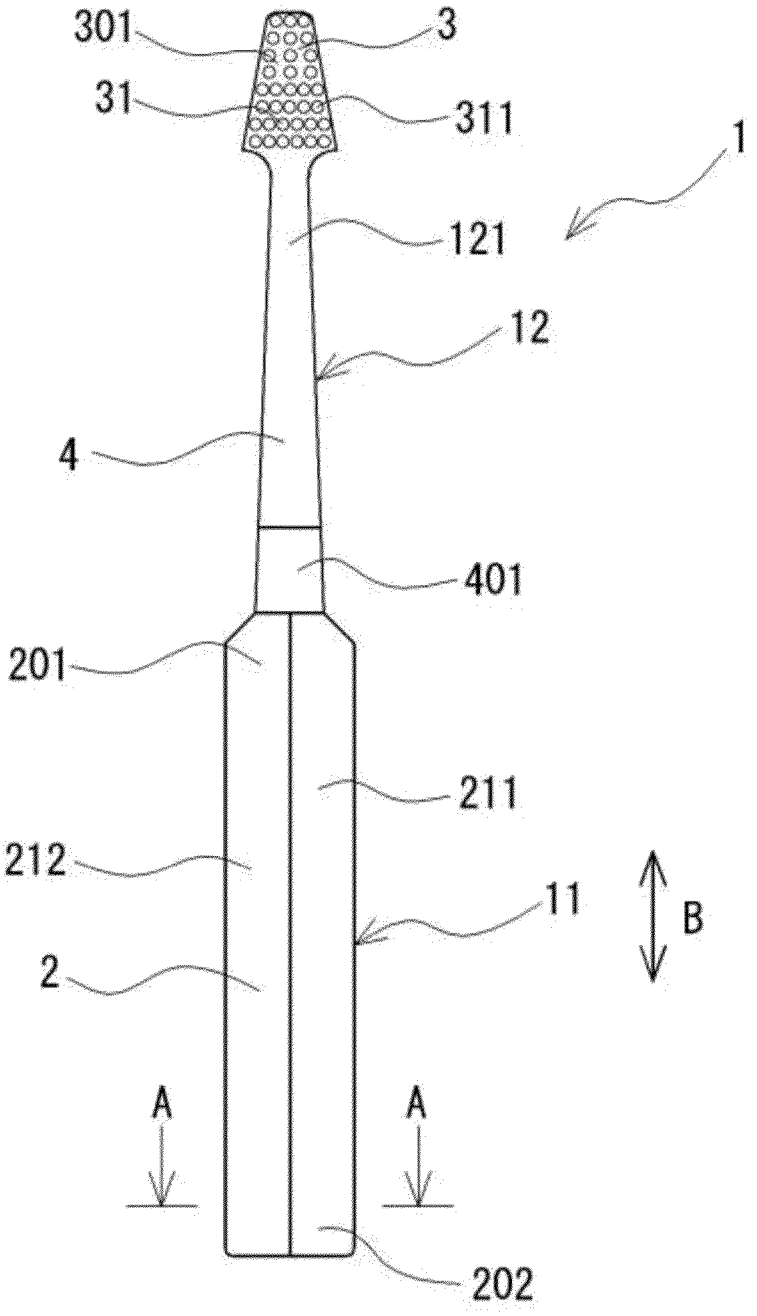

Fig. 1

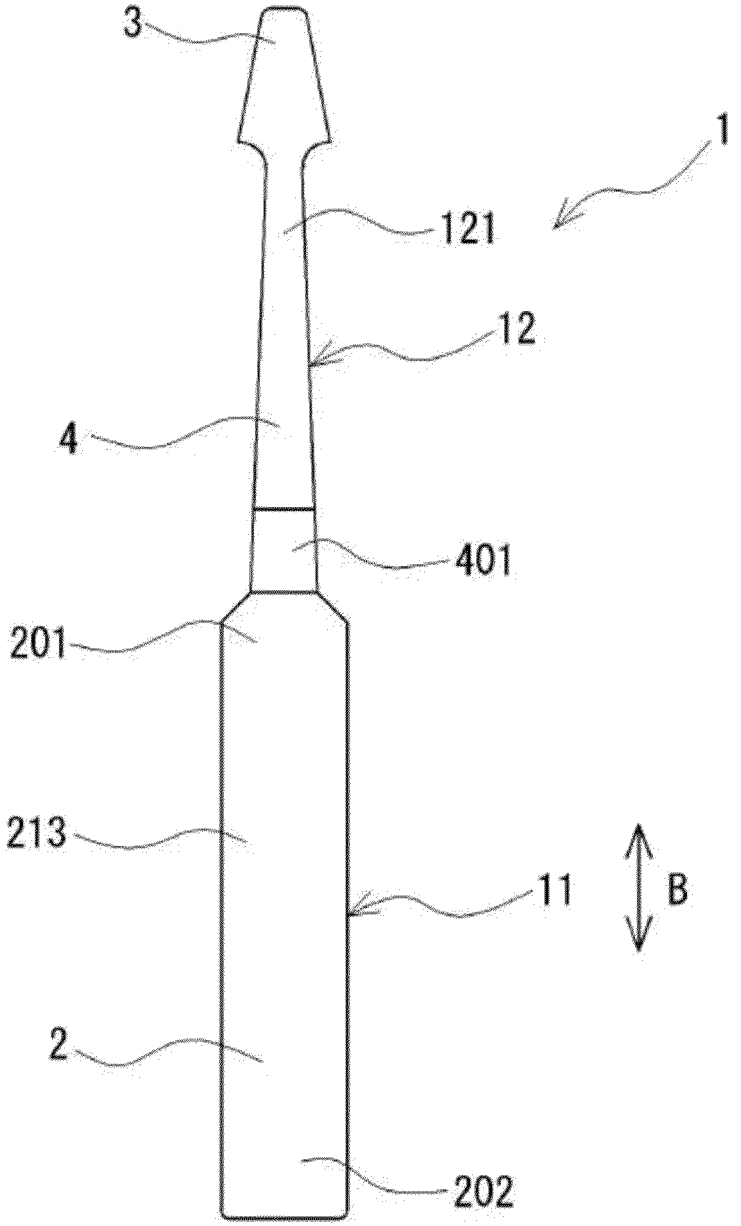

Fig. 2

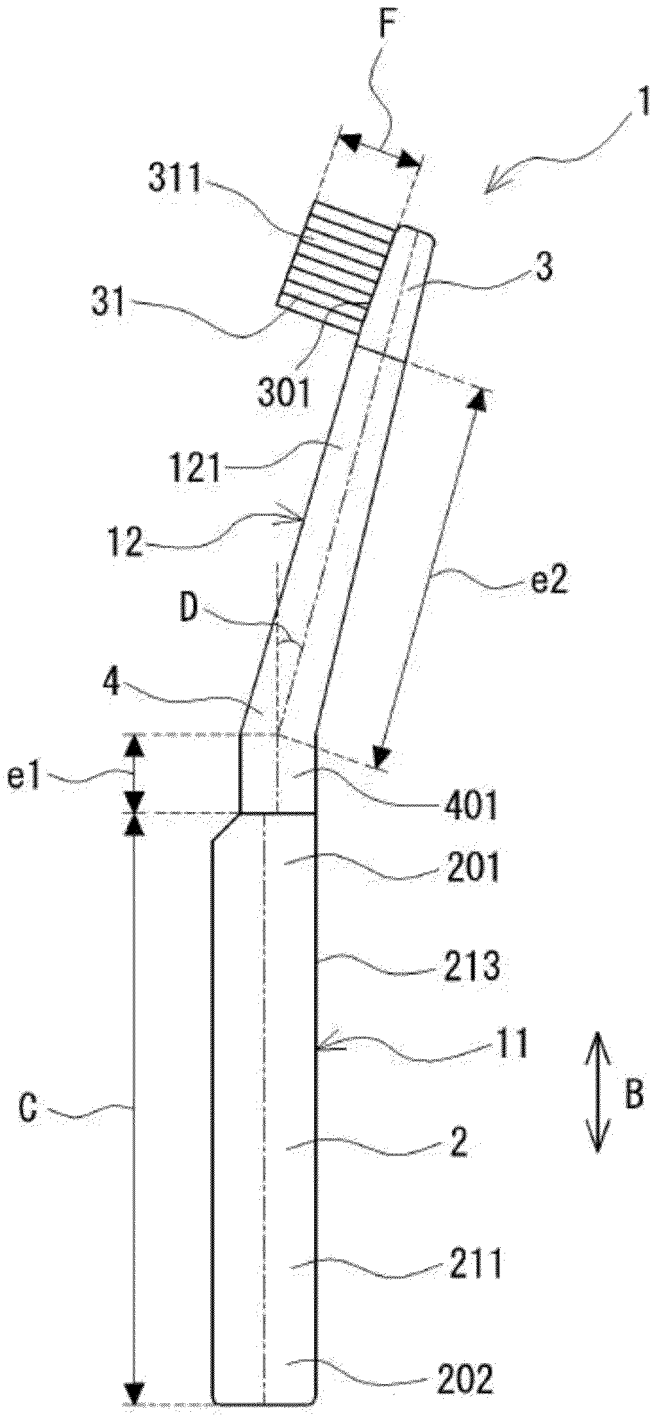

Fig. 3

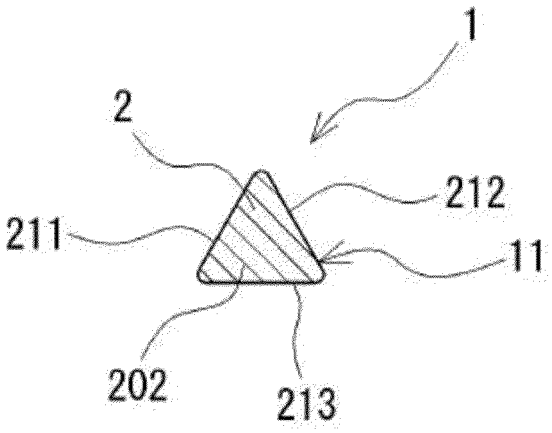

Fig. 4

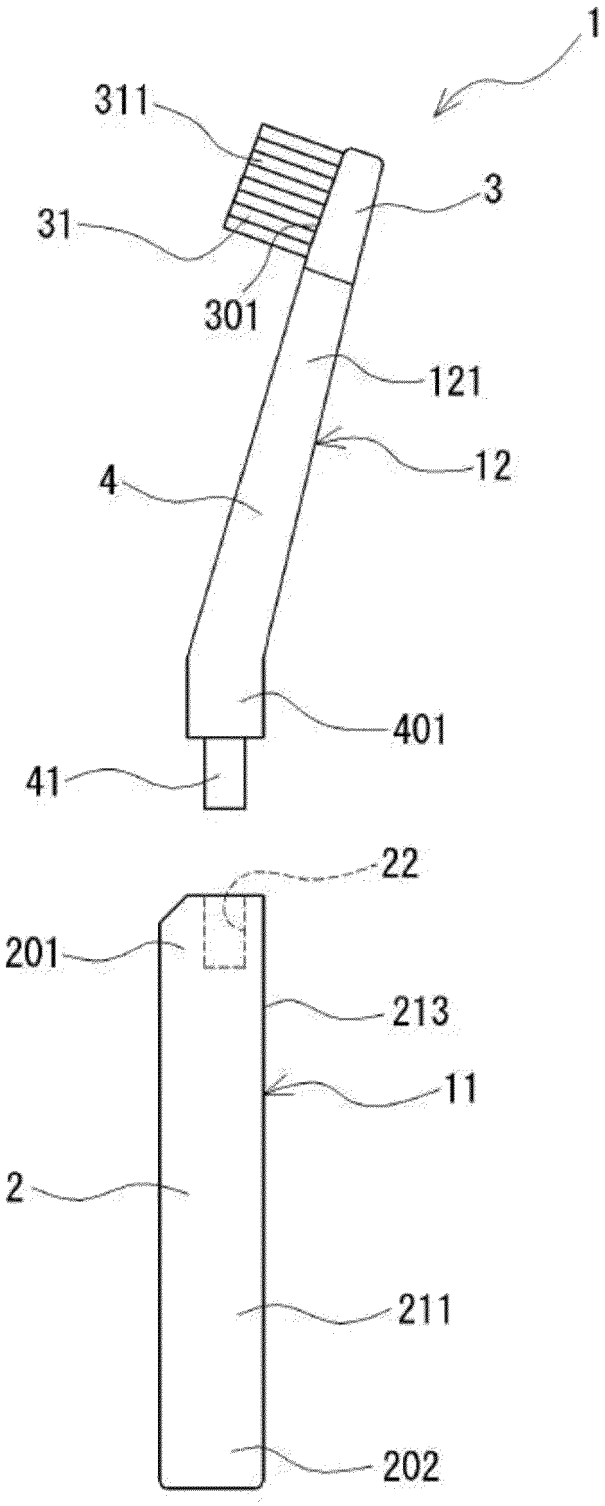

Fig. 5

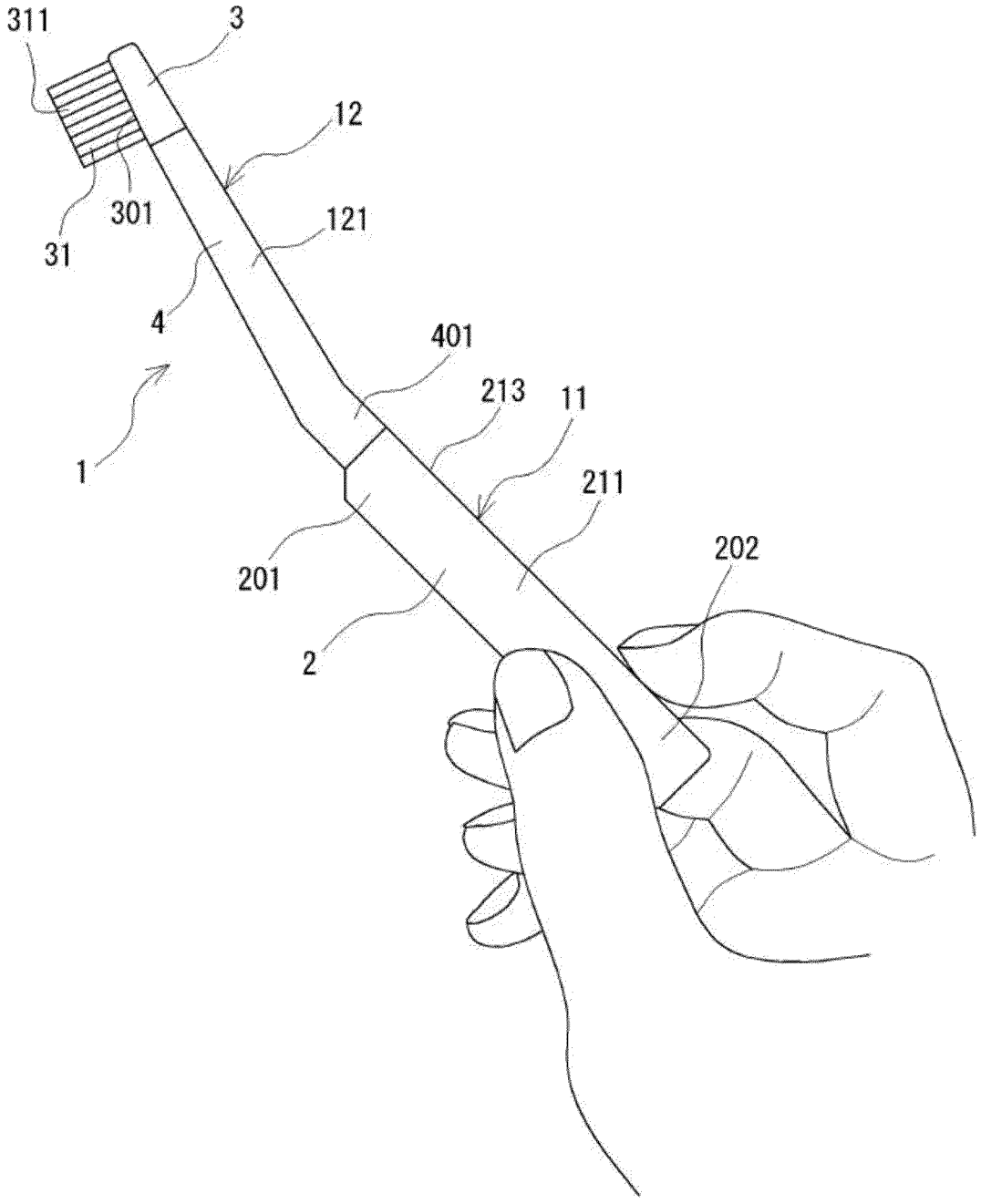

Fig. 6

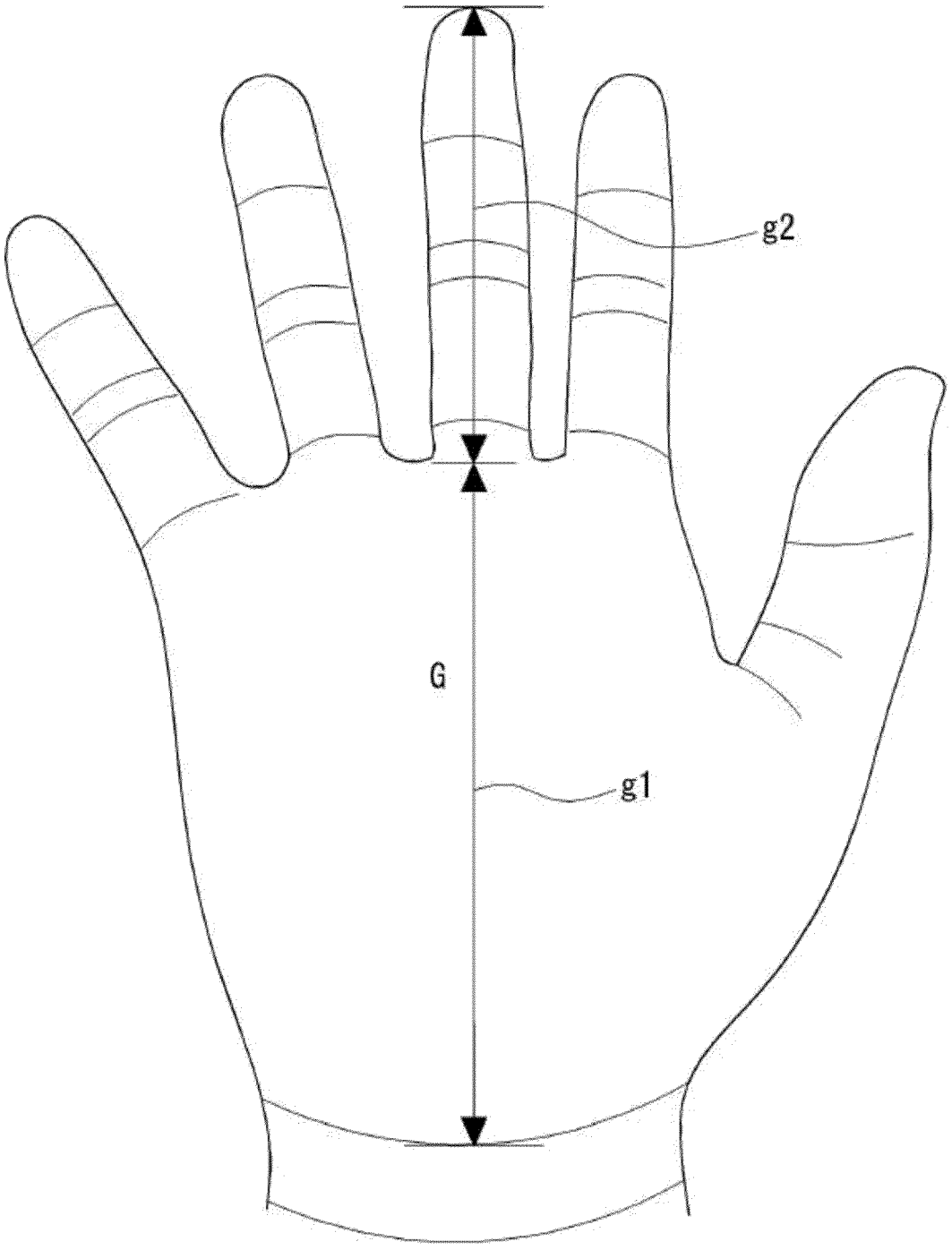

Fig. 7

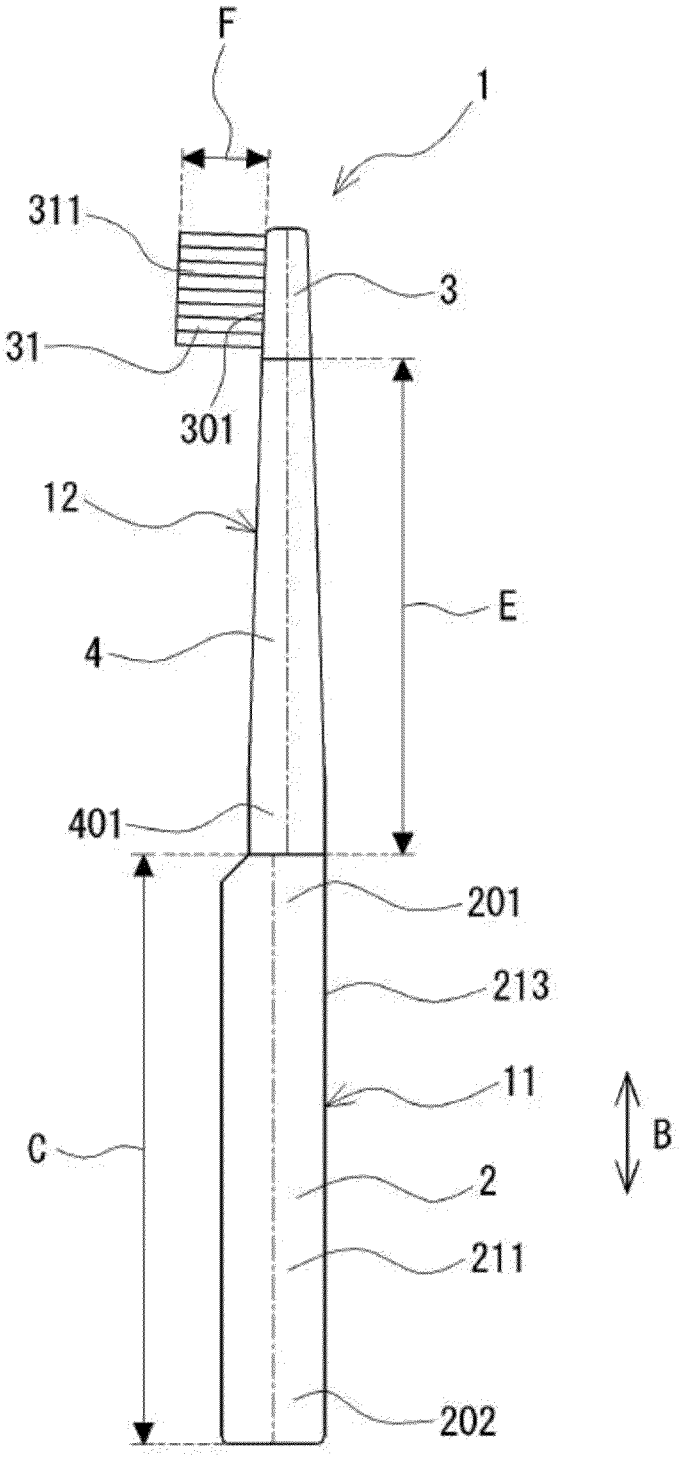

Fig. 8

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EUROPEAN SEARCH REPORT

Application Number
EP 24 21 0428

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	WO 2011/047489 A1 (TERXO AG [CH]; KITTMANN RALF [DE]) 28 April 2011 (2011-04-28) * figures 1-8 *	1-3	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	20 May 2025	Kun, Karla

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