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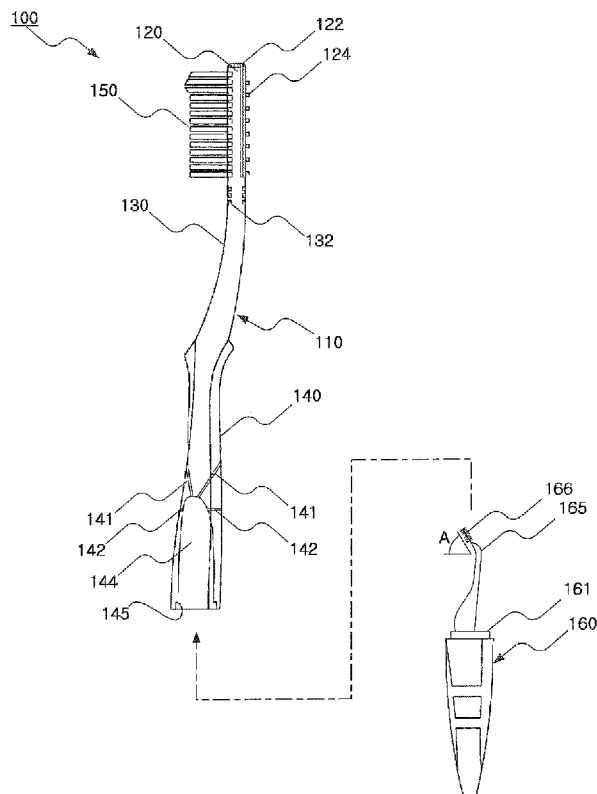
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(54) Title: A MULTIFUNCTIONAL TOOTHBRUSH

[Fig. 2]



(57) Abstract: Disclosed is a multifunction toothbrush having a structure where a toothbrush for cleanness of a mouth, an interdental brush, a tongue cleaner, a toothpick, etc. are integrally assembled with each other, so that convenience increases. The multifunctional head toothbrush includes a body, which includes head part having one side assembled with bristles, a grip having a first receiving groove, and a connecting part positioned between the head part and the grip and a first extending bar, which is assembled with a first receiving groove and has an upper part inserted into the first receiving groove, the upper part being assembled with a first member.

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Description

A MULTIFUNCTIONAL TOOTHBRUSH

Technical Field

- [1] The present invention relates to a multifunction toothbrush, and more particularly to a toothbrush having a structure where a toothbrush for cleanness of a mouth, an interdental brush, a tongue cleaner, a toothpick, etc. are integrally assembled with each other, thereby increasing convenience.

Background Art

- [2] In order to secure cleanness of a mouth, use of a toothbrush has been encouraged.
- [3] Hereinafter, a typical toothbrush is described with reference to FIG. 19. FIG. 19 is a perspective view of a typical toothbrush.
- [4] As shown in FIG. 19, the typical toothbrush 10 has bristles 14 coupled to an upper part of a body 12. After tooth paste is strained on the bristles 14, the bristles 14 are brushed against teeth so as to remove alien substances, bacteria, etc. adhered to the surface of the teeth.
- [5] However, the bristles 14 of such toothbrush 10 are coupled to a large area of the toothbrush so as to clean the surface of teeth. Therefore, there is a problem in that alien substances and tartar (plaque) adhered between teeth can not be removed.
- [6] In order to resolve such a problem, an interdental toothbrush shown in FIG. 20 is suggested.
- [7] FIG. 20 is a perspective view of a typical interdental toothbrush.
- [8] As shown in FIG. 20, the interdental toothbrush 20 has interdental bristles 24 coupled to an upper part of a body 22.
- [9] The interdental bristles 24 have a small coupling area in comparison with the bristles 14 coupled to a typical toothbrush 10, so that the interdental bristles 24 can be moved between teeth.
- [10] Therefore, as the toothbrush 10 and the interdental brush 20 are used, it is possible to effectively remove alien substance and bacteria positioned in gaps between teeth.
- [11] However, since the toothbrush 10 and the interdental brush 20 are provided as separate products, the user has to buy two products and carry these separately during trips, etc. Therefore, there is inconvenience in using them.

Disclosure of Invention

Technical Problem

- [12] The present invention has been made in view of the above-mentioned problems, and the present invention provides a toothbrush having a structure where an interdental toothbrush and bristles are integrally coupled with each other so that the user can con-

veniently use and carry it.

Technical Solution

- [13] According to an aspect of the present invention, there is provided a multifunctional toothbrush may including a body, which includes a head part having one side assembled with bristles, a grip having a first receiving groove, and a connecting part positioned between the head part and the grip; and a first extending bar, which is assembled with a first receiving groove and has an upper part inserted into the first receiving groove, the upper part being assembled with a first member. Also, a ventilating hole may be formed at the first receiving groove.
- [14] A second receiving groove may be formed at a lower part of the first extending bar, and the multifunctional toothbrush may further include a second extending bar, which is assembled with a lower part of the second receiving groove and has a portion to be inserted into the second receiving groove, the portion being assembled with a second member.
- [15] Also, a second member may be assembled with a lower part of the first extending bar, and the multifunctional toothbrush may include a cover for keeping the second member, wherein a ventilation hole is formed at the cover.
- [16] A receiving groove screw part may be formed at an inner circumferential surface of a lower part of the first receiving groove, and a extending bar screw part is formed at an outer circumferential surface of an upper part of the first extending bar so that the body and the first extending bar are assembled with each other by a screw, and a sealing packing may be additionally assembled with an lower end of the extending bar screw part of the first extending bar.
- [17] The member may be at least one among an interdental toothbrush, a toothpick, a toothbrush of implant, and a dental rubber band, and the member may be fixed to the extending bar or is detachably assembled with the extending bar.
- [18] An assembling groove having one opened side may be formed at an end of the extending bar so as to allow the member to be detachably assembled with the extending bar, and an assembling piece, which has one side coupled with the member, is engaged with the assembling groove.
- [19] One side of the assembling groove may have a diameter larger than a diameter of the other side of the assembling groove, the assembling piece has a cylindrical shape corresponding to a shape of the assembling groove, and each sectional shape of the assembling groove and the assembling piece is an oval shape.
- [20] In a case where the member may be an interdental brush, an assembling angle between the assembling groove and the assembling piece is 70~80 degrees in a horizontal and clockwise direction.

- [21] A tongue cleaner for cleaning a tongue may protrude from one side of the body or the extending bar, and the head part may be made from soft plastic or natural resin or is coated with them.
- [22] The connecting part may have an elastic groove formed along an outer periphery of the connecting part, and the elastic groove is filled with soft plastic.
- [23] A second receiving groove may be formed at a lower side part of the first extending bar.
- [24] A stopping jaw may be formed at an upper part of the second receiving groove.
- [25] The second receiving groove may have a shape surrounding an outer periphery of a second member, and a second member is engaged with the second receiving groove.
- [26] The multifunctional toothbrush may further include a side cover for covering the second receiving groove.

Advantageous Effects

- [27] According to the present invention, a toothbrush includes an interdental brush, a tongue cleaner, a toothpick, etc., which are integrally assembled with each other, so that the user can effectively use and carry necessary articles for cleansing his/her mouth.
- [28] That is, the present invention provides a toothbrush, which includes a body including a head part, a grip, a connecting part, and an extending bar, which is assembled with the body and has a structure where an interdental brush, a toothpick, a toothbrush for implants, dental rubber bands, etc. are assembled with each other, so that the toothbrush can have various functions in one product.
- [29] Moreover, in the present invention, although an interdental brush, a toothpick, a toothbrush for implant, dental rubber bands, etc. are fixed to an extending bar, they can be detachably assembled thereto. Therefore, in this case, it is possible to assemble a necessary first member, such as the toothpick, the interdental brush, etc. so as to be used, or to easily replace a deteriorated member.
- [30] Moreover, in the present invention, a ventilating hole is formed in a first receiving groove. It has an advantage in that exhaustion of air or moisture is facilitated. Besides, a portion of the ventilating hole is formed to be inclined towards the top of the toothbrush so that it is possible to more easily exhaust moisture or air is possible in a case where the toothbrush is kept in an inversed state.
- [31] According to the present invention, a second receiving groove is formed at the lower part of a first extending bar, and a second extending bar, with which a second member to be inserted into the lower part of the second receiving groove, is included in the present invention so that the user can assemble a interdental brush, etc. so as to use it.
- [32] That is, the interdental brush, etc. assembled with the second extending bar has a

short service life. However, an interdental brush, which hasn't been used yet, can be kept in the first receiving groove so that the user can easily replace a deteriorated interdental brush with the kept one.

[33] Meanwhile, a sealing packing is additionally assembled with a lower end of a screw part of the first extending bar so that it is possible to prevent water or contaminants from entering the interior of the interdental brush, etc., which are kept while the user uses the toothbrush.

[34] According to another embodiment of the present invention, the second member is assembled with the lower part of the first extending bar, and there is no separated extending member. Therefore, a simple toothbrush structure can be achieved.

[35] In this case, the toothbrush further includes a cover for keeping the second member so that it is possible to prevent contamination of the second member. Particularly, a ventilating hole is formed at the cover so that it is possible to exhaust air or contaminant to the outside while the user uses the tooth brush.

[36] According to the present invention, a receiving groove screw part is formed at an inner circumferential surface of the lower part of the first receiving groove, and an extending bar screw part is formed at an outer circumferential surface of the upper part of the first extending bar. Therefore, the body and the first extending bar are fixedly assembled with each other by a screw.

[37] Meanwhile, in the present invention, an assembling groove having an opened side is formed at an end of the extending bar, and an assembling piece having a member is included. Therefore, the user can simply assemble and replace the member.

[38] Particularly, one side of the assembling groove has a diameter larger than a diameter of the other side thereof, and the assembling piece has a cylindrical shape corresponding to the shape of the assembling groove. Therefore, it is possible to prevent the user from assembling the assembling piece in a wrong direction. In addition, each sectional shape of the assembling groove and the assembling piece is an oval shape so that it is possible to prevent the assembling piece from performing idle rotation within the assembling groove.

[39] Also, in a case where a member is an interdental brush, it is preferable that an assembling angle between the assembling groove and the assembling piece is 70~80 degrees in a horizontal and clockwise direction. This angle is a suitable angle allowing the user to easily clean interdental gaps.

[40] Also, in the present invention, a tongue cleaner for cleaning a tongue protrudes from one side of the bar or the extending bar so that it is possible to clean a tongue, which causes 90% of mouth odor, as well as teeth in the mouth by one toothbrush.

[41] Also, in the present invention, the head part is made from soft plastic or natural resin, or is coated with either so as not to injure weak tissue in a mouth.

[42] Furthermore, the connecting part has an elastic groove formed along an outer periphery thereof, and the elastic groove is filled with soft resin so as to provide elastic force between the grip and the head part.

[43] Also, according to another embodiment of the present invention, the second receiving groove is formed at a lower side part of the first extending bar, the second receiving groove has a shape surrounding an outer periphery of a second member, and the second member is inserted into and assembled with the second receiving groove. Therefore, the second member is easily detachably assembled with the body, and the second receiving groove can be easily cleaned so that a hygienic toothbrush can be provided.

[44] Also, a stopping jaw is formed at an upper part of the second receiving groove so that the second member isn't moved up more than a predetermined height.

[45] Also, a side cover for covering a side of the second receiving groove is additionally assembled with the second receiving groove so that convenience can be achieved, and it is possible to prevent contamination of the second member.

Brief Description of the Drawings

[46] FIG. 1 is a perspective view of a toothbrush according to a first embodiment of the present invention;

[47] FIG. 2 is an exploded side view of FIG. 1;

[48] FIGs. 3 to 8 are rear views of a main part of the tooth brush of FIG. 1;

[49] FIG. 9 is a side view of an extending bar according to a second embodiment of the present invention;

[50] FIG. 10 is a perspective view of an extending bar according to a third embodiment of the present invention;

[51] FIG. 11 is an exploded sectional view of a toothbrush according to a fourth embodiment of the present invention;

[52] FIG. 12 is a sectional view of the toothbrush of FIG. 11, in which the tooth brush is assembled;

[53] FIG. 13 is a view of the state of the toothbrush of FIG. 11, in which the toothbrush is used;

[54] FIG. 14 is an exploded sectional view of a toothbrush according to a fifth embodiment of the present invention;

[55] FIG. 15 is an exploded sectional view of a toothbrush according to a sixth embodiment of the present invention;

[56] FIG. 16 is a sectional view taken along line A-A' of FIG. 15;

[57] FIG. 17 is a sectional view taken along line B-B' of FIG. 15;

[58] FIG. 18 is a view illustrating a state of the toothbrush of FIG. 15, in which the

toothbrush is used;

[59] FIG. 19 is a perspective view of a typical toothbrush; and

[60] FIG. 20 is a perspective view of a typical interdental brush.

Best Mode for Carrying Out the Invention

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

[62] In the following description of the present invention, a detailed description of known functions and configurations incorporated herein will be omitted when it may obscure the subject matter of the present invention. In addition, the terminology used in the description is defined in consideration of the function of corresponding components used in the present invention and may be varied according to users, operator's intention, or practices. Accordingly, the definition must be interpreted based on the overall content disclosed in the description.

[63] 1st embodiment

[64] First, with reference to FIG. 1 and 8, a functional toothbrush according to a first embodiment of the present invention will be described.

[65] FIG. 1 is a perspective view of a toothbrush according to the first embodiment of the present invention, FIG. 2 is an exploded side view of FIG. 1, and FIG.s 3 to 8 are rear views of a main part of the toothbrush of FIG. 1.

[66] As shown, the multifunctional toothbrush 100 according to this first embodiment (hereinafter, the multifunctional toothbrush is briefly called a toothbrush, as long as there is no particular description, for convenience in description) roughly includes a body 110 and an extending bar 160 (a first extending bar, hereinafter, briefly called an extending bar).

[67] The body 110 includes a head part 120, a connecting part 130, and a grip 140.

[68] The head part 120 has bristles 150 assembled on one side thereof and a coating part 122 formed on a surface of the other side thereof, and additionally has a tongue cleaner 12. The coating part 122 is made from soft plastic or natural resin so as to prevent wounds from occurring when the head part 120 bumps into the inside of a mouth during brushing.

[69] Meanwhile, it is also possible that the coating part 122 made from soft plastic is not formed on the surface of the other side of head part 120. Instead, the head part 120 is made from soft plastic or natural resin.

[70] It is possible to use harmless and soft material such as silicon, rubber, etc. as the soft plastic or natural resin.

[71] As shown in FIGs. 3 to 8, the tongue cleaner 124 has a protuberance-pattern so as to remove alien materials positioned on a tongue by friction against the tongue.

- [72] Meanwhile, particularly, there is no need to limit the shape of the tongue cleaner 124 to a linear stripe-type. As shown in FIGs. 3 to 8, it is noted that a lattice pattern, a waveform pattern, etc. can be possible.
- [73] Also, particularly, the tongue cleaner 124 is not limited to being formed at the head part 120. Therefore, it is noted that it can be formed at the grip 140 or at the surface of the extending bar 160.
- [74] The connecting part 130 connects the head part 120 and the grip 140 with each other, and further has an elastic groove 132 formed along an outer periphery thereof. Soft plastics are coupled with the elastic groove 132.
- [75] The grip 140 has a receiving groove 144 (a first receiving groove, hereinafter, briefly called as receiving groove, which is opened toward a lower side. The receiving groove 144 provides a space, in which an interdental brush of an extending bar 160, which will be described below, is installed, and a plurality of ventilating holes 141 and 142 extending through the body 110. The ventilating hole 141 is formed upward with a slant. The ventilating holes 141 and 142 are used for exhausting moisture existing in the interdental brush (other member, although an interdental tooth brush as an example of other member is described, it is also understood that other member except for the interdental toothbrush can be included), which is disposed within the receiving groove 144, or for ventilating air.
- [76] A part of the extending bar 160 is inserted into and assembled with the receiving groove 144, and the interdental brush 166 is assembled with the part inserted into the receiving groove 144 in such a manner that it extends from an interdental toothbrush bar 165. Herein, it is preferable that an assembling angle of the interdental brush 166 is 75 degrees respective to a horizontal plane.
- [77] Meanwhile, a stopping jaw is formed at a lower end of the receiving groove 144, and a stopping protuberance 161 corresponding to the stopping jaw is formed at the extending bar 160 so as to allow the extending bar 160 to be disposed at the receiving groove 144. Herein, it is noted that a method for assembling the grip 140 with the extending bar 160 may be a screw assembling method using a screw groove, as well as an engaging method according to the first embodiment of the present invention.

Mode for the Invention

- [78] 2nd embodiment
- [79] Hereinafter, a second embodiment of the present invention is described with reference to FIG. 9.
- [80] FIG. 9 is a side view of an extending bar according to the second embodiment of the present invention.
- [81] As shown in FIG. 9, the extending bar 260 according to the second embodiment is

substantially equal to the extending bar 160 according to the first embodiment of the present invention, except for the fact that the interdental toothbrush is replaced with a toothpick 266.

[82] As shown in the second embodiment, it is possible that the extending bar is replaced with a toothpick, a toothbrush for implant, a dental circular rubber band holder, etc., as well as the interdental toothbrush, according to necessary.

[83] 3rd embodiment

[84] Hereinafter, the third embodiment of the present invention will be described with reference to FIG. 10.

[85] FIG. 10 is a perspective view of an extending bar according to the third embodiment of the present invention.

[86] As shown in FIG. 10, differently from the extending bar 160 according to the first embodiment, the extending bar 360 according to the third embodiment includes an elastic groove 365 formed at an end thereof, which has one opened side and has a cylindrical shape. In addition, the extending bar 360 includes an accessory piece 370 elastically assembled with the elastic groove. A toothpick, an interdental brush, etc. are assembled with the accessory piece 370.

[87] Meanwhile, in the present embodiment, although the terms elastic groove and accessory piece are used, the same configurations are denoted as an assembling groove and an assembling piece, respectively.

[88] Herein, it is preferable that one side of the elastic groove 365 has a diameter larger than a diameter of the other side thereof, and that the accessory piece 370 has a cylindrical shape corresponding to the shape of the elastic groove. Due to such a configuration, it is possible to prevent the user from assembling the accessory piece 370 in a wrong direction when using it.

[89] Moreover, it is preferable that each sectional shape of the elastic groove 365 and the accessory piece 370 is an oval shape. Due to such a configuration, it is possible to prevent the accessory piece 370 from performing idle rotation within the elastic groove 365.

[90] Herein, it is preferable that an assembling angle B of the interdental toothbrush 375 is 75 degrees respective to a horizontal plane.

[91] As such, according to the third embodiment, it is possible to replace the accessory piece 370 according to the user's need so that various kinds of articles for dental care can be assembled.

[92] 4th embodiment

[93] Hereinafter, a toothbrush according to the fourth embodiment of the present invention will be described with reference to FIGs. 11 to 13.

[94] FIG. 11 is an exploded sectional view of a toothbrush according to the fourth

embodiment of the present invention, FIG. 12 is a sectional view of the toothbrush of FIG. 11, in which the tooth brush is assembled, and FIG. 13 is a view of a use state of the toothbrush of FIG. 11.

- [95] As shown, the toothbrush 400 according to the fourth embodiment includes a body 410, a first extending bar 440, and a second extending bar 460.
- [96] The body 410 has bristles 450 coupled to an upper one side thereof and a first receiving groove 411 formed at a lower part thereof. A screw part 412 is formed at an inner circumferential surface of the lower part of the first receiving groove 411.
- [97] A first member inserting groove 445 is formed at an upper end of the first extending bar 440, and a second receiving groove is formed at a lower part of the first extending bar 440. The upper part of the first extending bar 440 is inserted into and assembled with the first receiving groove 411.
- [98] At this time, the screw part 443 is formed at an outer circumferential surface of the upper part of the first extending bar 440 so that the body 410 and the first extending bar 440 are fixedly assembled with each other by a screw. Moreover, a sealing packing 444 is additionally assembled with the lower part of the screw part 443 so as to help in maintaining airtightness.
- [99] Meanwhile, a ventilating hole 442 is formed at the second receiving groove 441 so as to help in maintaining ventilation in a state where a second member (an interdental toothbrush, etc., hereinafter, the second member is called as an interdental toothbrush for convenience in description), which is assembled with the second extending bar 460, is received into the second receiving groove 441.
- [100] A second member inserting groove 465 is formed at an upper end of the second extending bar 460, and the upper part of the second extending bar 460 is inserted into and assembled with the second receiving groove 441.
- [101] Meanwhile, the second extending bar 460 has upper and lower parts symmetrical to each other. Therefore, the second extending bar 460 is assembled with the first extending bar 440 in such a manner that the second member 448 is positioned within the second receiving groove 441 when not being used. Meanwhile, the second extending bar 460 is reversed and assembled with the first extending bar 440 when the interdental toothbrush 448 is used. Such a state is illustrated in FIG. 13.
- [102] The toothbrush 400 having such structure allows the user to perform interdental brushing by using the interdental toothbrush 448, as well as brushing performed by using the bristles 450 and cleansing a tongue by using a tongue cleaner 422. Also, an extra interdental toothbrush 449 can be received in the first extending bar 440 so that the user can replace the interdental toothbrush with the extra one.
- [103] That is, since the second member, such as an extra interdental toothbrush, etc. is received in the first extending bar, an airtight state of the first extending bar is

maintained by screw assembling and sealing packing so as to prevent the different member from being deteriorated due to exposure to contaminant, such as air, water, etc. while it is not being used. The second extending bar has an advantage in that a through hole formed at the receiving groove so as to achieve drying of the interdental toothbrush while it is used.

[104] 5th embodiment

[105] Hereinafter, a toothbrush according to the fifth embodiment of the present invention will be described with reference to FIG. 14.

[106] FIG. 14 is an exploded sectional view of the toothbrush according to the fifth embodiment of the present invention.

[107] As shown in FIG. 14, the toothbrush 500 according to the fifth embodiment is substantially equal to the toothbrush 400 according to fourth embodiment of the present invention, except for a structure where a member inserting grooves are formed at upper and lower ends of the first extending bar 540, respectively, so that members 548 and 549 (an interdental toothbrush, etc.) are assembled with the inserting grooves.

[108] The toothbrush 500 having such a configuration is kept in a state where it is covered by a cover 560 having a ventilating hole 561 when not being used, and when the user wants to use an interdental toothbrush 548, the cover 560 is disassembled from the toothbrush.

[109] 6th embodiment

[110] Hereinafter, a toothbrush according to the sixth embodiment of the present invention will be described with reference to FIGs. 15 to 18.

[111] FIG. 15 is an exploded sectional view of a toothbrush according to the sixth embodiment of the present invention, FIG. 16 is a sectional view taken along line A-A of FIG. 15, FIG. 17 is a sectional view taken along line B-B' of FIG. 15, and FIG. 18 is a view illustrating a use state of the toothbrush of FIG. 15.

[112] As shown, in the sixth embodiment, a second receiving groove 646 is additionally formed at a lower side part of a first extending bar 640, and a second member 648 is inserted into and assembled with the second receiving groove 646.

[113] In other words, a groove is formed at a sectional surface of the lower part of the second receiving groove 646, which corresponds to an outer circumferential surface of the second member 648, and a stopping jaw 645 is formed at the upper part of the second receiving groove 646 so as to prevent the second member from moving upward anymore. Also, a side cover 647 for covering a side part of the second receiving groove 646 is additionally assembled with the second receiving groove 646.

[114] In the toothbrush 600 having such a structure according to the sixth embodiment, the second member 648 is engaged with the second receiving groove 646, and the toothbrush is kept in a state where the side cover 647 is assembled therewith. Then, if

the user wants to use the second member 648, the user slides the second member 648 downward so as to separate it from the second receiving groove 646, and assembles it after reversing it. Such a state is shown in FIG. 18. At this time, the second receiving groove 646 surrounds the most part of the second member 648 so that it is possible to stably maintain a fixed state.

[115] Also, a decorative ring (not shown) is additionally and coupled to the upper part of the first extending bar 640 according to the user's selection so that an aesthetic satisfaction can be provided to the user.

Industrial Applicability

[116] As described above, the embodiments of the present invention are described with the accompanying drawings. However, the present invention is not limited to the above described embodiments, and it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

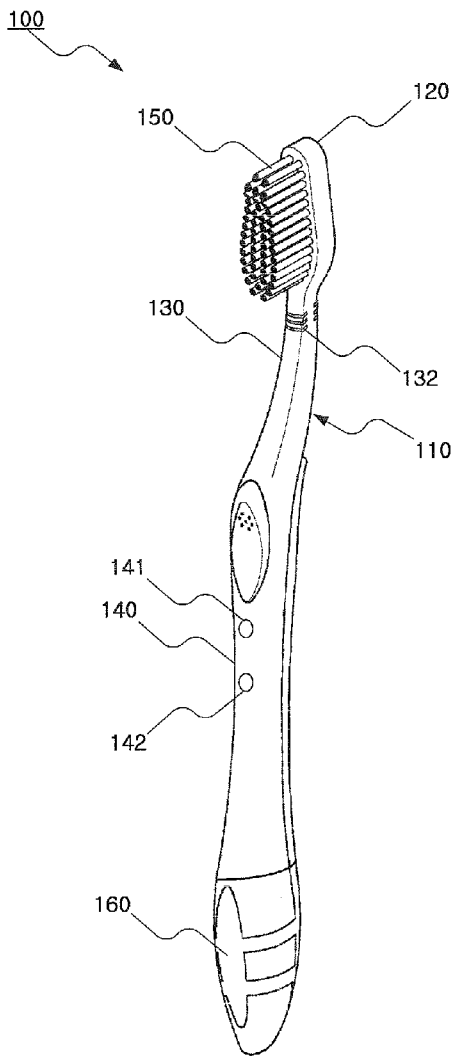
Claims

- [1] A multifunctional toothbrush comprising:
a body, which includes a head part having one side assembled with bristles, a grip having a first receiving groove, and a connecting part positioned between the head part and the grip; and
a first extending bar, which is assembled with a first receiving groove and has an upper part inserted into the first receiving groove, the upper part being assembled with a first member.
- [2] The multifunctional toothbrush as claimed in claim 1, wherein a ventilating hole is formed at the first receiving groove.
- [3] The multifunctional toothbrush as claimed in claim 1, wherein a second receiving groove is formed at a lower part of the first extending bar.
- [4] The multifunctional toothbrush as claimed in claim 3, further comprising a second extending bar, which is assembled with a lower part of the second receiving groove and has a portion to be inserted into the second receiving groove, the portion being assembled with a second member.
- [5] The multifunctional toothbrush as claimed in claim 1, wherein a second member is assembled with a lower part of the first extending bar.
- [6] The multifunctional toothbrush as claimed in claim 5, further comprising a cover for keeping the second member, wherein a ventilation hole is formed at the cover.
- [7] The multifunctional toothbrush as claimed in one of claims 3 to 6, wherein a receiving groove screw part is formed at an inner circumferential surface of a lower part of the first receiving groove, and a extending bar screw part is formed at an outer circumferential surface of an upper part of the first extending bar so that the body and the first extending bar are assembled with each other by a screw.
- [8] The multifunctional toothbrush as claimed in claim 7, wherein a sealing packing is additionally assembled with an lower end of the extending bar screw part of the first extending bar.
- [9] The multifunctional toothbrush as claimed in one of claims 1 to 6, wherein the member is at least one among an interdental toothbrush, a toothpick, a toothbrush of implant, and a dental rubber band.
- [10] The multifunctional toothbrush as claimed in claim 9, wherein the member is fixed to the extending bar or is detachably assembled with the extending bar.
- [11] The multifunctional toothbrush as claimed in claim 10, wherein an assembling groove having one opened side is formed at an end of the extending bar so as to

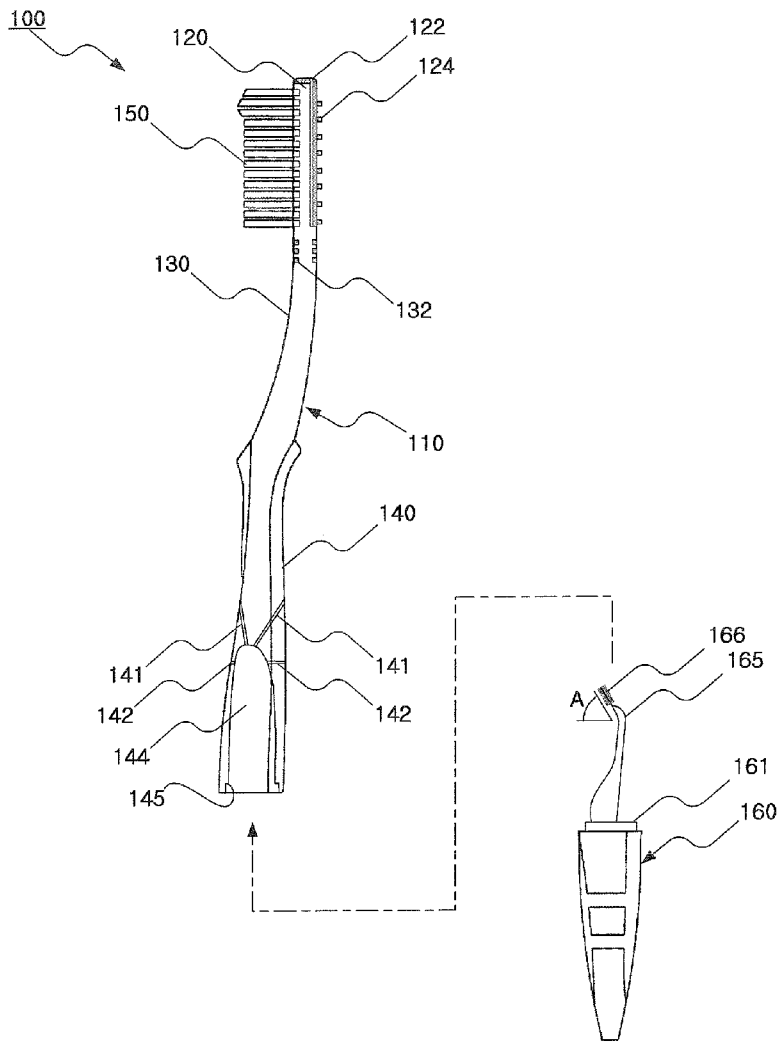
allow the member to be detachably assembled with the extending bar, and an assembling piece, which has one side coupled with the member, is engaged with the assembling groove.

- [12] The multifunctional toothbrush as claimed in claim 11, wherein one side of the assembling groove has a diameter larger than a diameter of the other side of the assembling groove, the assembling piece has a cylindrical shape corresponding to a shape of the assembling groove, and each sectional shape of the assembling groove and the assembling piece is an oval shape.
- [13] The multifunctional toothbrush as claimed in claim 12, wherein, in a case where the member is an interdental brush, an assembling angle between the assembling groove and the assembling piece is 70~80 degrees in a horizontal and clockwise direction.
- [14] The multifunctional toothbrush as claimed in one of claims 1 to 6, wherein a tongue cleaner for cleaning a tongue protrudes from one side of the body or the extending bar.
- [15] The multifunctional toothbrush as claimed in one of claims 1 to 6, wherein the head part is made from soft plastic or natural resin or is coated with them.
- [16] The multifunctional toothbrush as claimed in claim 15, wherein the connecting part has an elastic groove formed along an outer periphery of the connecting part, and the elastic groove is filled with soft plastic.
- [17] The multifunctional toothbrush as claimed in claim 1, wherein a second receiving groove is formed at a lower side part of the first extending bar.
- [18] The multifunctional toothbrush as claimed in claim 17, wherein a stopping jaw is formed at an upper part of the second receiving groove.
- [19] The multifunctional toothbrush as claimed in claim 18, wherein the second receiving groove has a shape surrounding an outer periphery of a second member, and a second member is engaged with the second receiving groove.
- [20] The multifunctional toothbrush as claimed in claim 19, further comprising a side cover for covering the second receiving groove.

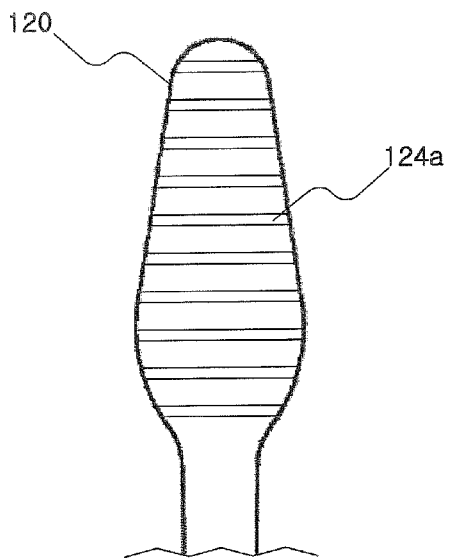
[Fig. 1]



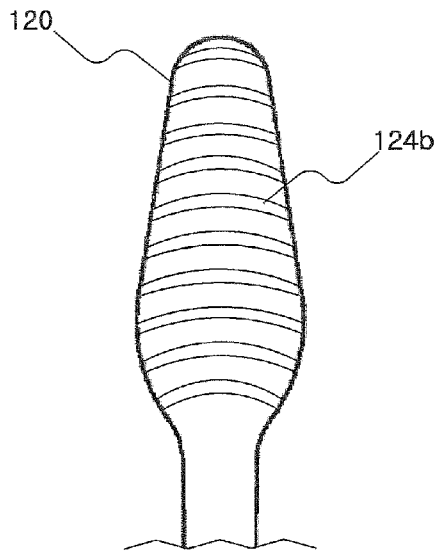
[Fig. 2]



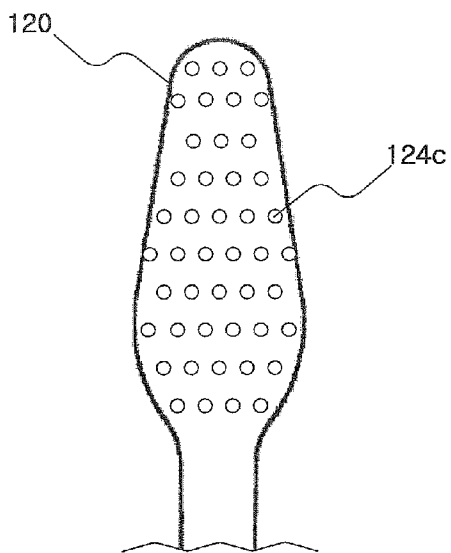
[Fig. 3]



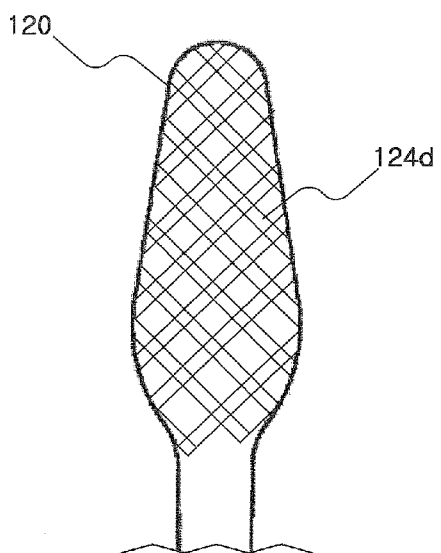
[Fig. 4]



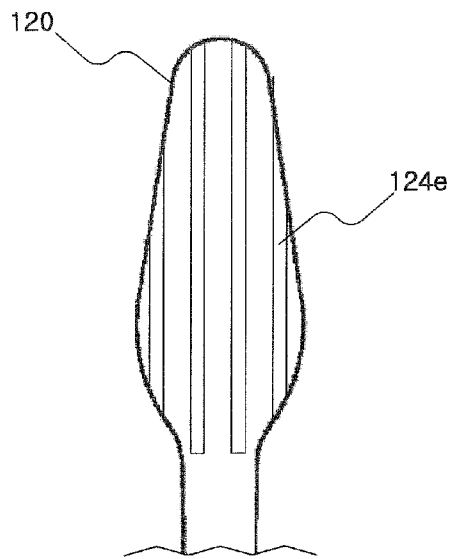
[Fig. 5]



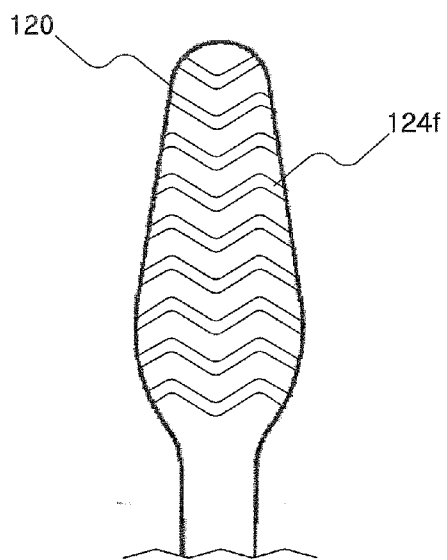
[Fig. 6]



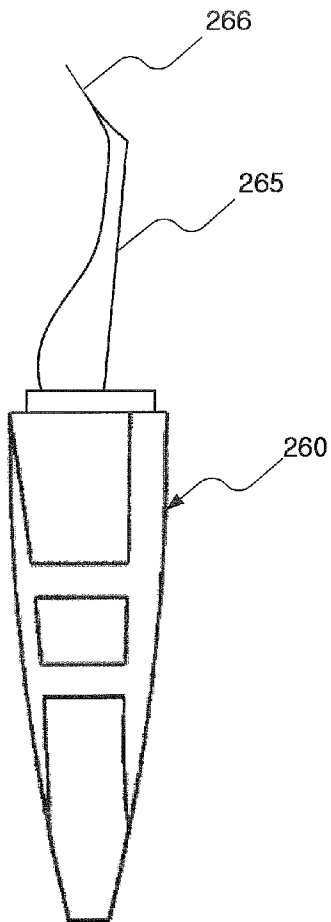
[Fig. 7]



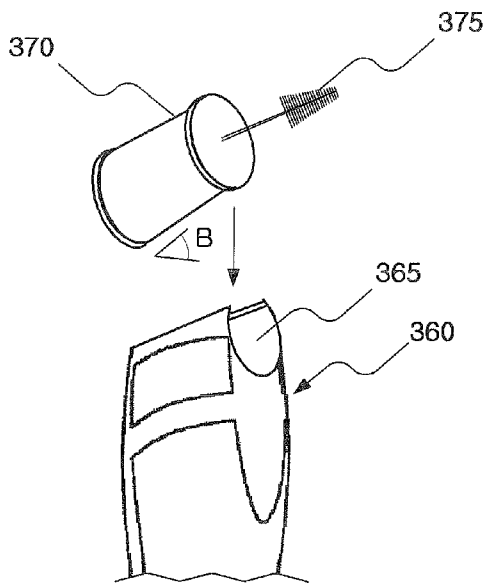
[Fig. 8]



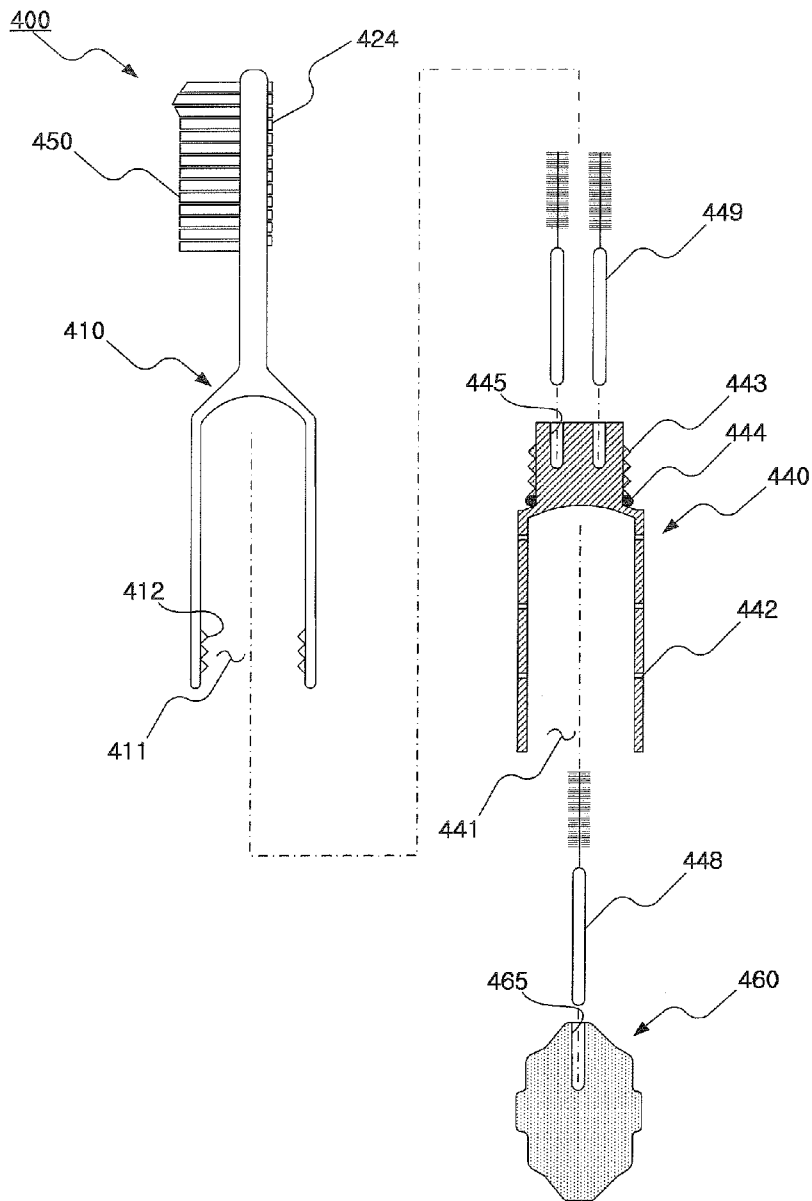
[Fig. 9]



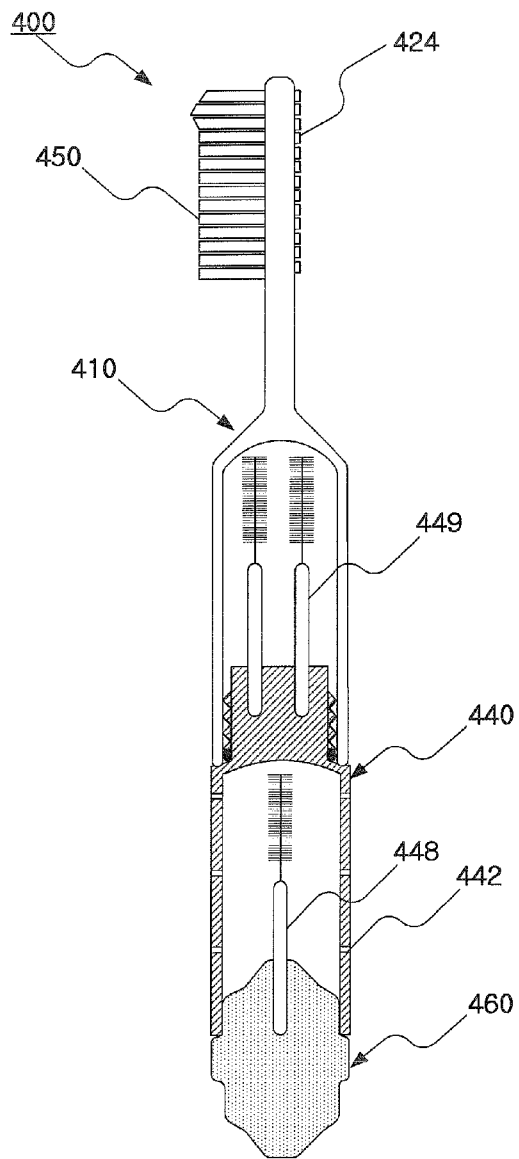
[Fig. 10]



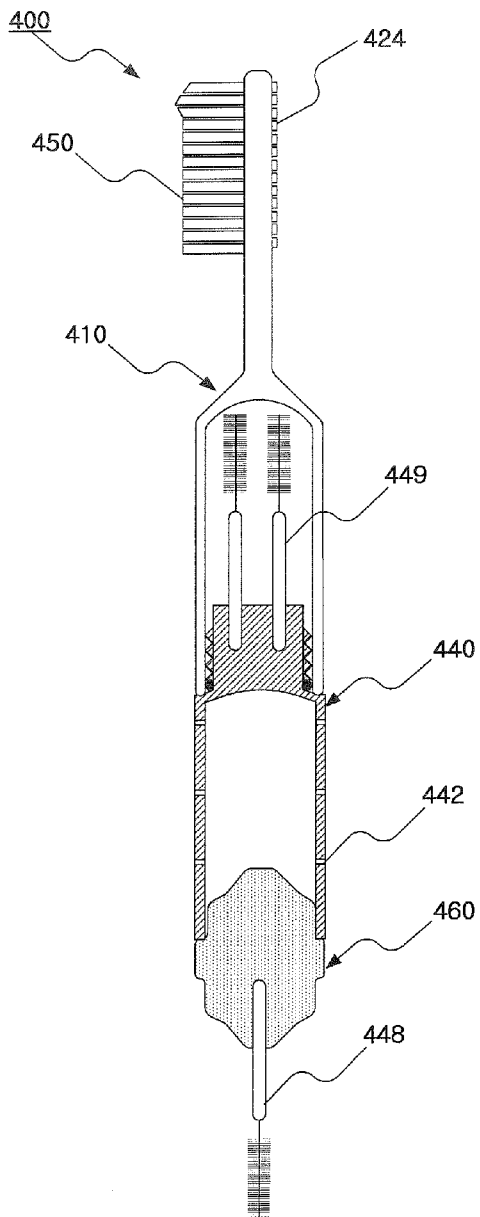
[Fig. 11]



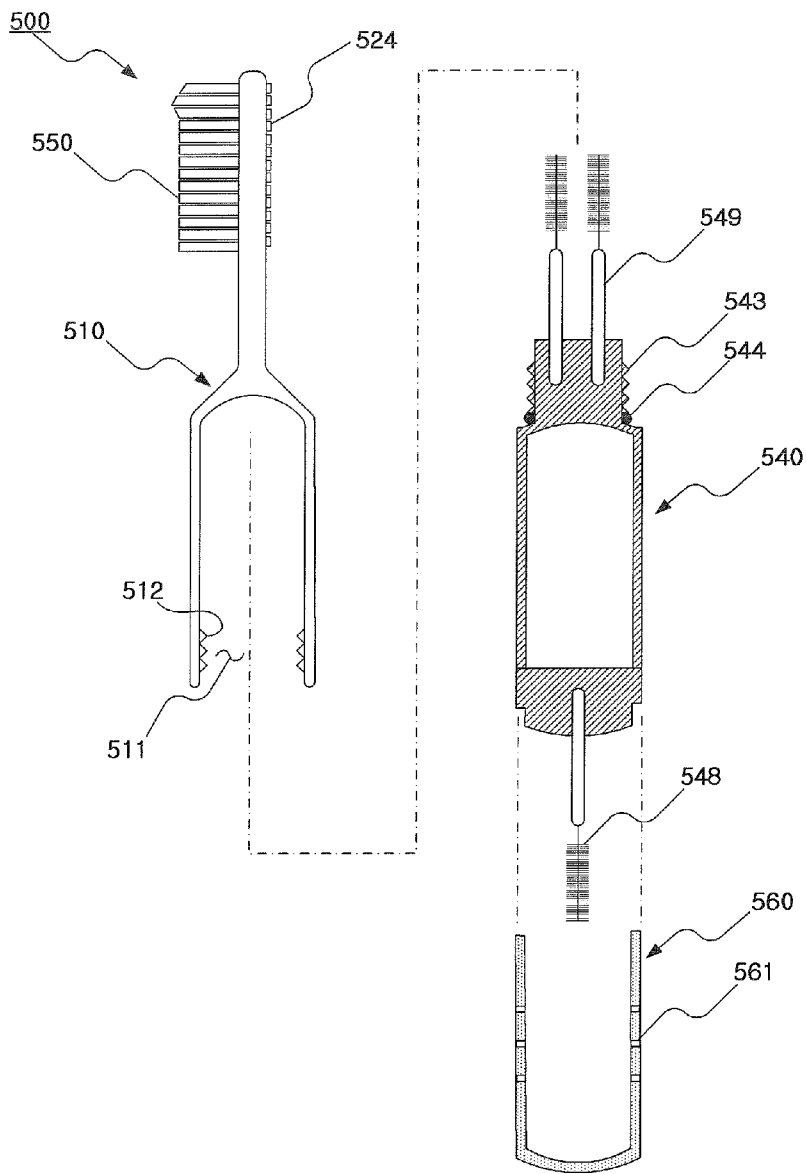
[Fig. 12]



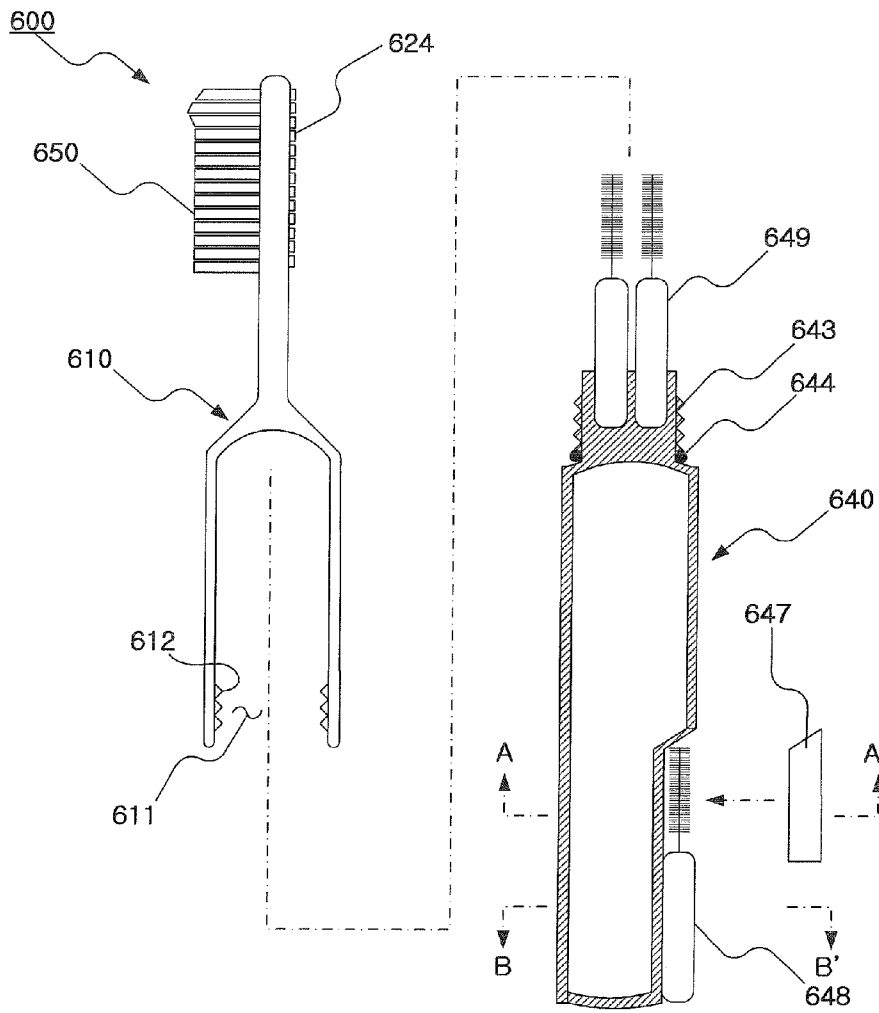
[Fig. 13]



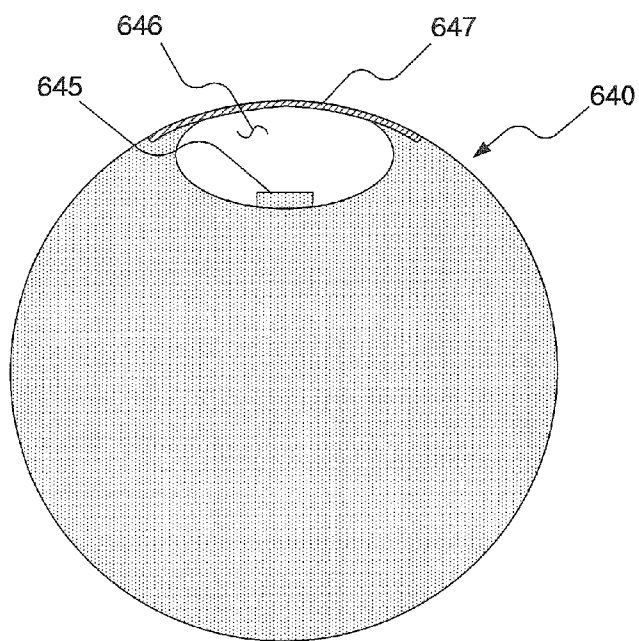
[Fig. 14]



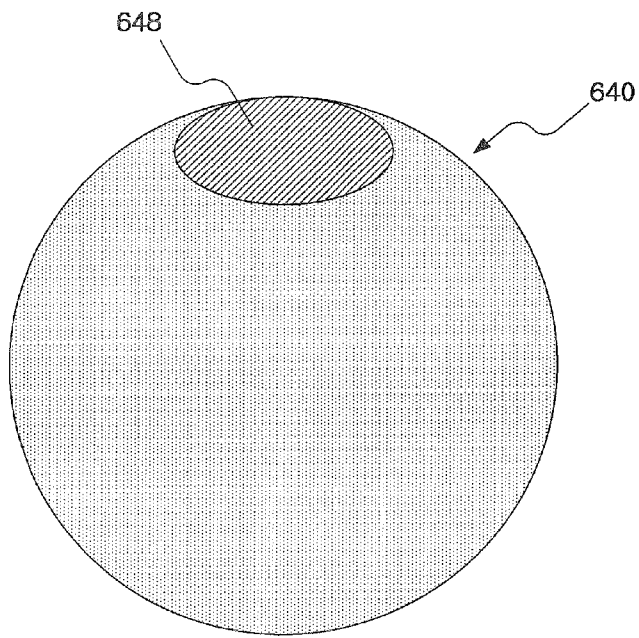
[Fig. 15]



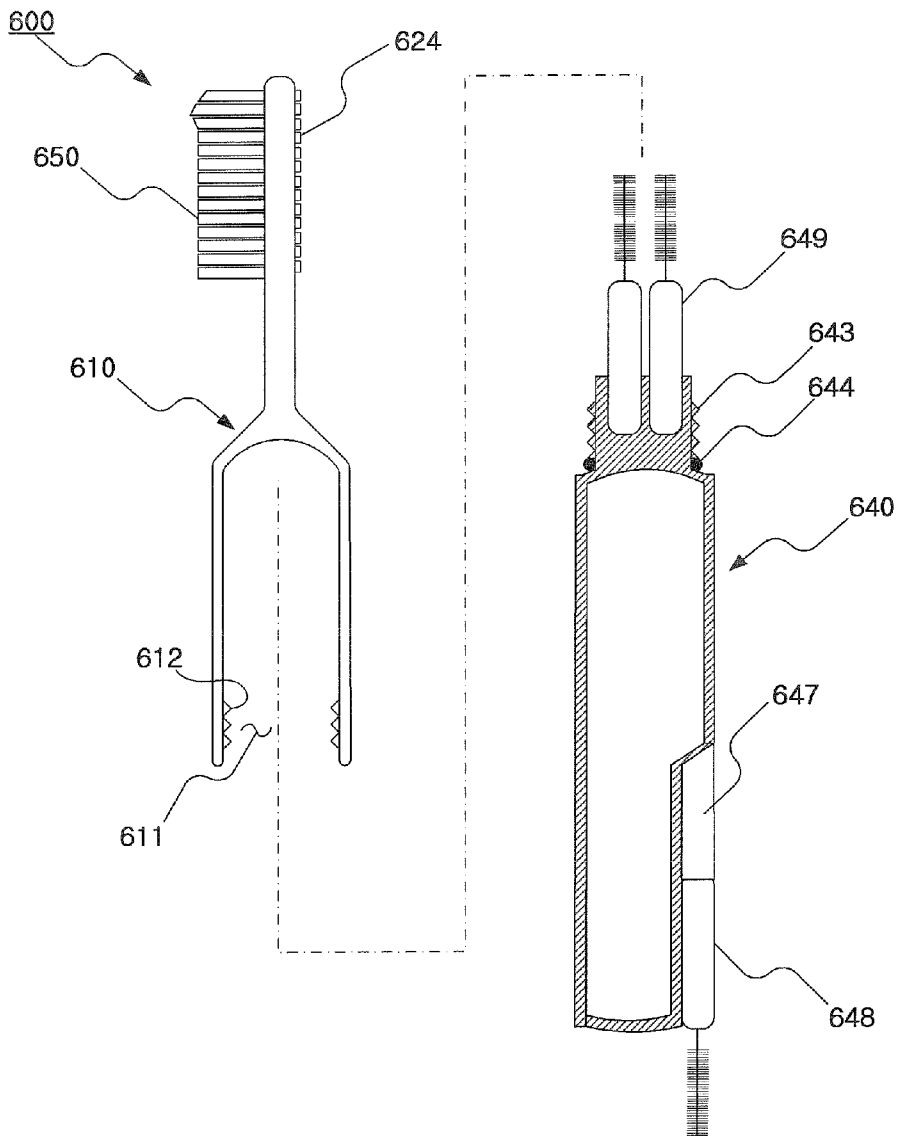
[Fig. 16]



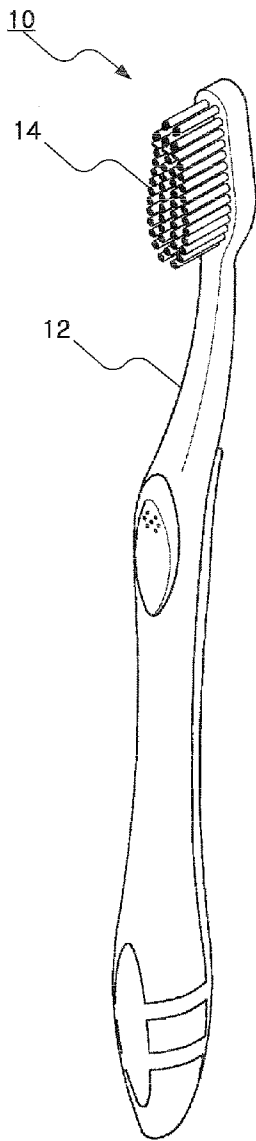
[Fig. 17]



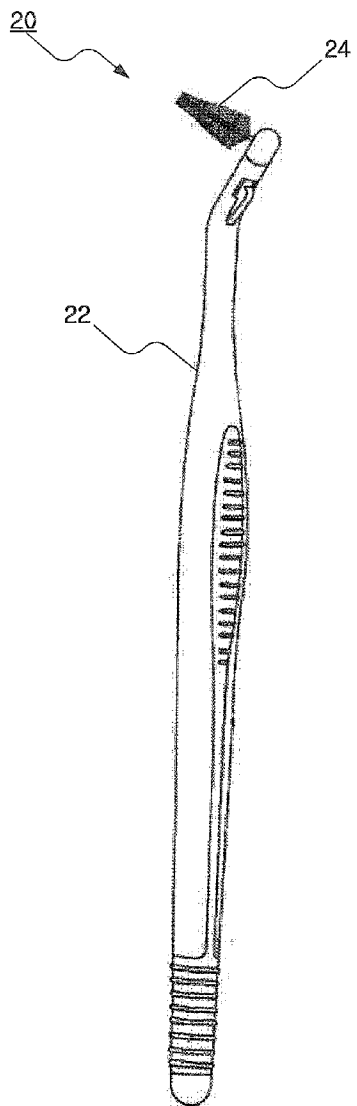
[Fig. 18]



[Fig. 19]





[Fig. 20]



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2008/004178

A. CLASSIFICATION OF SUBJECT MATTER		
<i>A46B 5/00(2006.01)i</i>		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC 8 A46B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean Utility models and applications for Utility models since 1975 Japanese Utility models and application for Utility models since 1975		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKIPASS(KIPO internal)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	KR 20-0407689 Y1 (JUNG, B. O.) 01 FEBRUARY 2006 See figures 1-4.	1,3,4,7-10,15,17-20 ----- 16
X ----- Y	KR 20-0426833 Y1 (ROH, S. W.) 20 SEPTEMBER 2006 See the whole document.	1,2,5,7-10,14,15 ----- 6,16
Y	KR 20-0348378 Y1 (PARK, S. W.) 28 APRIL 2004 See figures 1-2.	6
Y	US 2006/0288510 A1 (GEORGI, MATTHIAS and KRAEMER, HANS) 28 DECEMBER 2006 See paragraphs [0039]-[0041] and figure 1.	16
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 29 AUGUST 2008 (29.08.2008)		Date of mailing of the international search report 29 AUGUST 2008 (29.08.2008)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer LEE, Won Jae Telephone No. 82-42-481-5620 

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2008/004178

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KR 20-0426833 Y1	20.09.2006	NONE	
KR 20-0348378 Y1	28.04.2004	NONE	
US 2006/0288510 A1	28.12.2006	US 2007-151058 AA	05.07.2007