(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 777 607 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
17.02.2021 Bulletin 2021/07

(21) Application number: **18911906.8**

(22) Date of filing: **11.09.2018**

(51) Int Cl.:
A46B 9/02 *(2006.01)* ***A46B 9/04*** *(2006.01)*
A46B 15/00 *(2006.01)* ***A46D 1/00*** *(2006.01)*

(86) International application number:
PCT/KR2018/010602

(87) International publication number:
WO 2019/190004 (03.10.2019 Gazette 2019/40)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **29.03.2018 KR 20180036681**
18.06.2018 KR 20180069466

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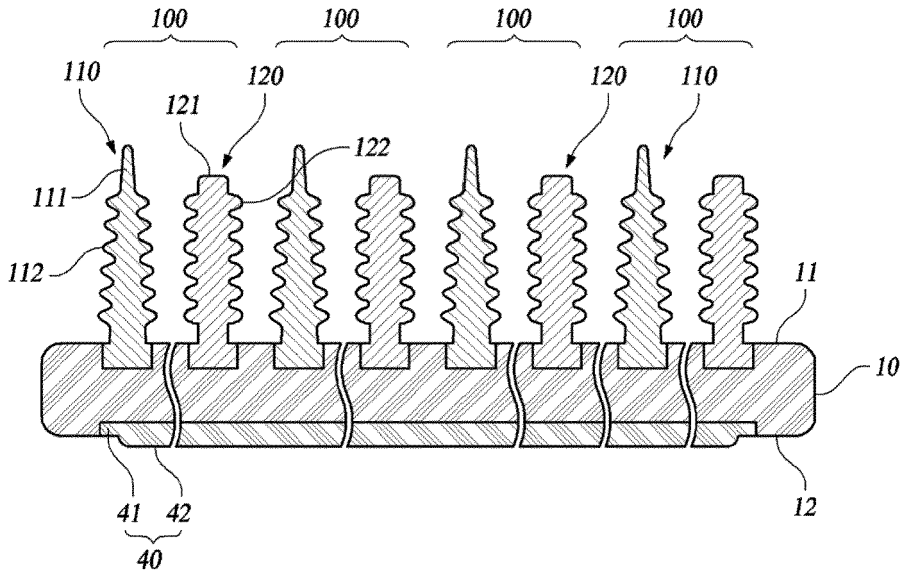
(54) **TOOTHBRUSH**

(57) Proposed is a toothbrush having pairs of bristles configured in a bundle, each of the pair of bristles being composed of a first bristle having a fine end portion and a second bristle having a flat end portion, thereby more efficiently removing food remnants that are stuck between teeth or remain on the surfaces of teeth, and efficiently removing food remnants stuck between teeth and dental braces even when the dental braces are installed on the teeth.

FIG. 3A



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Description

Technical Field

[0001] The present invention relates generally to a toothbrush. More particularly, the present invention relates to a toothbrush which has pairs of bristles configured in a bundle, each of the pairs of bristles being composed of a first bristle having a fine end portion and a second bristle having a flat end portion, thereby more efficiently removing food remnants that are stuck between teeth or remain on the surfaces of teeth, and efficiently removing food remnants stuck between teeth and dental braces even when the dental braces are installed on the teeth.

Background Art

[0002] As is well known, a toothbrush, which is used to clean teeth, can keep the teeth clean by removing food remnants which remain on the surfaces of the teeth or are stuck between the teeth due to food intake.

[0003] A normal toothbrush includes a head in which a bundle of toothbrush bristles are embedded to form columns, and a handle, wherein end portions of the plurality of toothbrush bristles are formed to have flat and straight shapes.

[0004] However, it is difficult to efficiently remove food remnants that are stuck between teeth and remain on the surfaces of teeth by using the normal toothbrush having the toothbrush bristles of flat and straight shapes as described above.

[0005] Meanwhile, recently, procedures for diagnosis, prevention, and treatment of abnormalities in the arrangement of teeth or facial features through orthodontic treatment have been widely used.

[0006] Here, the orthodontic treatment is meant to create a healthy oral tissue and a beautiful facial appearance by simply correcting crooked teeth and correcting various skeletal inconsistencies that may occur during a growth process so that the teeth can function normally.

[0007] In addition, the method of performing orthodontic treatment procedures is divided into the processes of orthodontic diagnosis and orthodontic treatment. Orthodontic diagnosis includes the process of establishing a treatment plan suitable for each individual by analyzing patient's problems by using first medical examination, X-ray imaging, a dental model, facial photographs, and intraoral photographs. Orthodontic treatment includes the process of controlling the movement of teeth and the growth of the jawbone by using a fixed orthodontic appliance, a removable orthodontic appliance, or an external device.

[0008] After the orthodontic treatment, the period required for correction of teeth takes at least 18 to 30 months, and due to complicated dental braces, there is the high risk of tooth decay and gum disease, so careful tooth brushing is required.

[0009] However, it is difficult to perform careful tooth brushing while preventing the damage to dental braces, and to efficiently remove food remnants which are stuck between the dental braces and teeth by using the normal toothbrush having the toothbrush bristles of flat and straight shapes as described above.

[0010] Furthermore, as for conventional toothbrushes, the structure of a toothbrush having toothbrush bristles used only for a molar, or the structure of a toothbrush having toothbrush bristles for a person who has an implant has not been proposed.

Disclosure

Technical Problem

[0011] The present invention has been proposed to solve the above-mentioned problems, and is intended to propose a toothbrush which has a bundle of pair of bristles configured in a bundle, each of the pairs of bristles being composed of a first bristle having a fine end portion and a second bristle having a flat end portion, thereby more efficiently removing food remnants that remain between teeth and on the surfaces of teeth so that careful tooth brushing is performed.

[0012] In addition, the present invention is intended to provide a toothbrush having bristles, each of the toothbrush bristles being divided into an outer bristle and an inner bristle, thereby allowing careful tooth brushing to be performed between dental braces and teeth.

[0013] Furthermore, the present invention is intended to provide a toothbrush, which has separate molar bristles provided on a corner portion of a surface of a head thereof, thereby more efficiently removing food remnants remaining on a molar.

[0014] Additionally, the present invention is intended to provide a toothbrush, wherein embossments are provided on multiple toothbrush bristles, thereby more effectively removing food remnants remaining the surfaces of teeth, and providing resilience to the toothbrush due to elasticity.

[0015] In addition, the present invention is intended to provide a toothbrush, wherein the bundle of toothbrush bristles is formed in longitudinal direction of the head only in two columns at the middle of a surface of the head so that the toothbrush can be usefully utilized as a toothbrush for a person who has an implant.

Technical Solution

[0016] In order to accomplish the above objectives, the present invention provides a toothbrush composed of a head and a handle connected to an end of the head, the toothbrush including: toothbrush bristles configured in a bundle, each of the toothbrush bristles composed of a first bristle having a fine end portion corresponding to space between teeth, and a second bristle provided at an inner side of the first bristle and having a flat end por-

tion corresponding to a surface of tooth, the toothbrush bristles being arranged in multiple columns on a surface of the head.

[0017] Here, each of the toothbrush bristles may be configured by being divided into an outer bristle configured as a pair of a first bristle and a second bristle and embedded in an outer portion of the surface of the head, and an inner bristle configured as a pair of a first bristle and a second bristle and embedded in the head to be arranged at an inner side of the outer bristle.

[0018] In addition, the outer bristle and the inner bristle may be configured to have different lengths so as to be arranged to have a V-shaped cross section.

[0019] Furthermore, the toothbrush may further include: molar bristles embedded in multiple columns in an outer portion of the surface of the head, each of the molar bristles having multiple unit bristles configured in a bundle and inclined downward inward in end portions thereof.

[0020] Additionally, the molar bristle may be a regular bristle or a fine bristle, and each of the toothbrush bristles is a fine bristle.

[0021] In addition, the molar bristle may be configured in the bundle on a corner portion of the surface of the head, and provided in the multiple columns.

[0022] Furthermore, the first bristle may be configured to taper in a direction of an outer end portion thereof.

[0023] Additionally, a length of the second bristle having the flat end portion may be configured to be shorter than a length of the first bristle.

[0024] In addition, an embossment may be provided on each of outer circumferential surfaces of the first bristle and the second bristle.

[0025] In addition, an embossment may be provided on an outer circumferential surface of the molar bristle.

[0026] Furthermore, each of the unit bristles of the molar bristle may have a flat end portion provided on an upper end thereof.

[0027] Additionally, the bundle of the toothbrush bristles composed of the pair of the first and second bristles and the bundle of the molar bristles may be configured in longitudinal directions of the head only in two columns at a middle of the surface of the head.

Advantageous Effects

[0028] According to the toothbrush of the present invention described above, pairs of bristles are configured in a bundle, each of which is composed of the first bristle having the fine end portion and the second bristle having the flat end portion, thereby more efficiently removing food remnants that remain between teeth and on the surfaces of teeth.

[0029] In addition, the end portions of the outer bristle and the inner bristle divided to be embedded to be perpendicular to an upper surface of the head are arranged to have a V-shaped cross section, and allow careful tooth brushing to be performed between dental braces and the teeth, thereby minimizing discomfort such as enamel wear, gum injury, and bristle loss.

[0030] Furthermore, according to the present invention, separate molar bristles, each of which has multiple unit bristles inclined downward inward in end portions thereof, are provided on a corner portion of a surface of the head of a toothbrush, thereby reliably removing food remnants remaining on a molar.

[0031] In addition, according to the present invention, embossments are provided on multiple toothbrush bristles, thereby further removing food remnants remaining the surfaces of teeth, providing resilience due to elasticity, and increasing the amount of foam produced during the use of toothpaste to maintain freshness in the mouth due to spaces between the embossments.

[0032] Additionally, according to the present invention, the bundle of the toothbrush bristles is formed in longitudinal directions of the head only in two columns at the middle of a surface of the head, thereby allowing the toothbrush to be usefully utilized as a toothbrush for a person who has an implant.

Description of Drawings

[0033]

FIG. 1 is a top plan view of a toothbrush according to a first embodiment of the present invention.

FIG. 2 is a bottom view of the toothbrush according to the first embodiment of the present invention.

FIG. 3a is a sectional view taken along line A-A of FIG. 1.

FIG. 3b is an enlarged view of "B" part of FIG. 1.

FIG. 3c is a view illustrating the use state of the toothbrush according to the first embodiment of the present invention.

FIG. 4a is a sectional view taken along line A-A of FIG. 1 according to a second embodiment of the present invention.

FIG. 4b is an enlarged view of the "B" part of FIG. 1 according to the second embodiment of the present invention.

FIG. 4c is a view illustrating the use state of a toothbrush according to the second embodiment of the present invention.

FIG. 5 illustrates a perspective view of a toothbrush and an enlarged view of "C" part thereof according to a third embodiment of the present invention.

FIG. 6 is a top plan view of the toothbrush according to a fourth embodiment of the present invention.

Best Mode

[0034] The present invention can be implemented in various other forms without departing from its technical spirit or main characteristics. Therefore, the embodiments of the present invention are merely illustrative in all respects and should not be interpreted as limiting the present invention.

[0035] Terms such as first and second may be used to describe various components, but the components should not be limited by the terms.

[0036] The terms are used only for the purpose of distinguishing one component from other components. For example, without departing from the scope of the present invention, the first component may be referred to as the second component, and similarly, the second component may also be referred to as the first component.

[0037] When a component is referred to as being "connected" or "coupled" to another component, it may be directly connected to or coupled to the other component, but it should be understood that other components may exist therebetween.

[0038] On the other hand, when a component is referred to as being "directly connected" or "directly coupled" to another component, it should be understood that no other component exists therebetween.

[0039] The terms used in the present specification are only used to describe specific embodiments, and are not intended to limit the present invention. Singular expressions include plural expressions unless the context clearly indicates otherwise.

[0040] In the present application, terms such as "include" or "be provided with", "have", etc. are intended to designate the existence of features, numbers, steps, actions, components, parts, or combinations thereof described in the specification. It should be understood that one or more other features, numbers, steps, operations, components, parts, or combinations thereof are not excluded in advance.

[0041] Unless defined otherwise, all terms used herein, including technical or scientific terms, have the same meaning as commonly understood by those skilled in the art to which the present invention belongs.

[0042] Terms defined in a commonly used dictionary should be interpreted as having meanings consistent with meanings in the context of related technologies, and are not to be construed in an ideal or excessively formal sense, unless explicitly defined in this specification.

[0043] Hereinafter, the exemplary embodiments will be described in detail with reference to the accompanying drawings so that those having ordinary knowledge in the technical field to which the present invention belongs can easily implement the present invention.

[0044] FIG. 1 is a top plan view of a toothbrush according to a first embodiment of the present invention; FIG. 2 is a bottom view of the toothbrush according to the first embodiment of the present invention; FIG. 3a is a sectional view taken along line A-A of FIG. 1; FIG. 3b is an enlarged view of "B" part of FIG. 1; and FIG. 3c is a view illustrating the use state of the toothbrush according to the first embodiment of the present invention.

[0045] As illustrated in the drawings, an orthodontic toothbrush of the present invention includes: a head 10; a handle 20 connected to an end of the head 10; and toothbrush bristles 100 configured in a bundle, each of the toothbrush bristles being composed of a first bristle 110 having a fine end portion 111 corresponding to space between teeth during tooth brushing, and a second bristle 120 provided at an inner side of the first bristle 110 and having a flat end portion 121 corresponding to the surface of a tooth, wherein the toothbrush bristles are arranged by being embedded in multiple columns in a surface of the head 10.

[0046] The head 10 and the handle 20 are preferably formed integrally to each other of a single synthetic resin having a suitable strength and hardness, and a thin neck portion 30 is provided between the head 10 and the handle 20.

[0047] The head 10 is configured such that the toothbrush bristles 100 arranged in multiple columns are embedded therein. The head 10 is formed in the shape of a roughly flat plate as illustrated in FIGS. 1 and 3a such that the toothbrush bristles 100 are embedded in an upper surface 11 of the head, and is formed to be round in the edges of front and rear ends thereof so as to be easily inserted into or removed from the mouth.

[0048] Referring to FIG. 2, a tongue coating remover 40 is formed on a lower surface 12 of the head 10, and includes a base 41 inserted to the lower surface of the head 10, and a tongue coating removal protrusion 42 formed integrally on the surface of the base 41. The tongue coating removal protrusion 42 is formed longitudinally along the left and right width direction of the head 10 and in plural, the plurality of the tongue coating removal protrusions being spaced apart from each other at predetermined intervals along the longitudinal direction of the head 10.

[0049] Accordingly, the tongue coating remover 40 scrapes and removes a white, gray, or tan material that forms on the tongue. The tongue coating remover 40 has predetermined elasticity and friction coefficients, and is made of a synthetic resin material different from the material of the head 10, and thus can be molded in the lower surface of the head 10 by insert injection.

[0050] The handle 20 is configured to be grasped by the hand for brushing teeth, and has a non-slip member 21 provided on each of an upper surface and a lower surface thereof as illustrated in FIGS. 1 and 2 to prevent the grasping hand from slipping. As illustrated in FIG. 1, the non-slip member 21 may be formed as a plurality of protrusions on each of the surfaces of the handle 20 by protruding therefrom. As illustrated in FIG. 2, the non-slip member 21 may be formed by being formed in a rectangular shape on the surface of the handle 20 and protruding therefrom, or may be formed on the same plane as the surface.

[0051] The toothbrush bristles 100 are configured in a bundle, each of the toothbrush bristles having a pair of bristles composed of the first bristle 110 having the fine end portion 111 and the second bristle 120 having the flat end portion 121, and are embedded in multiple columns along longitudinal directions of a toothbrush body in the entirety of the upper surface of the head 10 as illustrated in FIGS. 1 and 3b.

[0052] Referring to FIG. 3a, the first bristle 110 has the fine end portion 111, which is pointed, provided at an outer end portion thereof, the fine end portion being narrower toward the end of the longitudinal direction of the first bristle, so the fine end portion 111 removes food remnants stuck between the teeth 1.

[0053] A first embossment 112 is formed in a ring shape on the outer circumferential surface of the first bristle 110. Such a first embossment 112 is formed in plural at predetermined intervals along the longitudinal direction of the first bristle 110, and the plurality of first embossments 112 may be formed to have a changing outer diameter to be tapered like the outer surface of the first bristle 110, or may be formed to have the same outer diameter.

[0054] The plurality of first embossments 112 formed in this way is inserted between the teeth 1, and scrapes and removes food remnants which are not removed by the fine end portion 111, or scrapes and removes food remnants remaining on the surface of the tooth 1. The first bristle 110 has an elastic force due to the first embossment 112, and has the function to be restored to an initial shape thereof after tooth brushing.

[0055] Referring to FIG. 3a, the second bristle 120 is formed in a cylindrical shape having an outer diameter equal to or similar to the outer diameter of the root of the first bristle 110, and has the flat end portion 121 provided on an outer end portion thereof. The flat end portion 121 scrapes and removes food remnants remaining on the surface of the tooth 1, and the length of the second bristle 120 including the flat end portion 121 is configured to be shorter than the length of the first bristle 110.

[0056] In addition, a second embossment 122 is provided in a ring shape on the outer circumferential surface of the second bristle 120. Such a second embossment 122 is provided in plural by being spaced apart from each other at predetermined intervals along the longitudinal direction of the second bristle 120. The plurality of second embossments 122 is preferably provided to have the same outer diameter. The second bristle 120 has an elastic force due to the second embossment 122, and has the function to be restored to an initial shape thereof after tooth brushing.

[0057] Here, as for the first bristle 110 and the second bristle 120, a fine bristle thinner than a regular bristle is more preferably used to prevent injury to the gums.

[0058] Hereinafter, the operation of the toothbrush according to the present invention configured as described above will be described in detail with reference to FIGS. 3a to 3c.

[0059] Referring to FIG. 3b, the first bristle 110 is embedded in multiple columns at a position corresponding to the outer portion of the head 10. In the same state as FIG. 3c, when a user scrapes tooth by pushing the toothbrush in the forward and backward directions or left and right directions of the tooth 1 by grasping the handle, the fine end portion 111 of the first bristle 110 is inserted between the teeth 1 and removes food remnants stuck therebetween by pushing or scraping the food remnants, and the plurality of first embossments 112 scrapes and removes food remnants which are not removed by the fine end portion 111 in an axial direction thereof, or scrapes and removes food remnants remaining on the surface of the tooth 1.

[0060] Along with this, the flat end portion 121 of the second bristle 120 scrapes and removes food remnants remaining on the surface of the tooth 1 in a direction orthogonal to an axis thereof, and the second embossment 122 scrapes and removes food remnants remaining on the surface of the tooth 1 in an axial direction thereof.

[0061] In addition, due to the embossments, the toothbrush of the present invention more efficiently removes food remnants remaining on the surface of the tooth 1, and has elasticity, thereby having excellent resilience and increasing the amount of foam produced during the use of toothpaste to maintain freshness in the mouth due to spaces between the embossments.

[0062] FIG. 4a is a sectional view taken along line A-A of FIG. 1 according to a second embodiment of the present invention; FIG. 4b is an enlarged view of the "B" part of FIG. 1 according to the second embodiment of the present invention; and FIG. 4c is a view illustrating the use state of a toothbrush according to the second embodiment of the present invention. The toothbrush bristle is configured by being divided into an outer bristle 200 embedded in an outer portion of a surface of the head 10, and an inner bristle 300 embedded in the head 10 to be arranged at the inner side of the outer bristle 200. The outer bristle 200 and the inner bristle 300 are configured to have different lengths from each other to be arranged to have a V-shaped cross section. In this regard, the configuration of the toothbrush bristle of FIGS. 4a to 4c is different from the configuration of the toothbrush bristle of FIGS. 3a to 3c, and thus the difference will be mainly explained hereinafter.

[0063] The outer bristle 200 has substantially the same structure as the structure of the toothbrush bristle 100 according to the first embodiment described above, and is configured as a pair of a first bristle 210 having a fine end portion 211 and a second bristle 220 having a flat end portion 221. As illustrated in FIG. 4b, the outer bristle 200 is embedded in a column or in multiple columns along the edges (left and right dotted rectangles in FIG. 4b) of left and right opposite sides corresponding to outer portions of the upper surface of the head 10.

[0064] In addition, as illustrated in FIG. 4a, the first bristle 210 and the second bristle 220 of the outer bristle 200 have first and second embossments 212 and 222 provided, respectively, on the outer circumferential surfaces thereof in the same way as described above. The plurality of first embossments 212 is preferably formed to have a changing outer diameter to be tapered, and the plurality of second embossments 222 is preferably formed to have the same outer diameter.

[0065] The inner bristle 300 has substantially the same structure as the structure of the outer bristle 200, and is

provided as a pair of bristles composed of a first bristle 310 having a fine end portion 311 and a second bristle 320 having a flat end portion 321. As illustrated in FIG. 4b, the inner bristle 300 is embedded in a column or in multiple columns along a longitudinal direction (the middle dashed rectangle of FIG. 4b) of a middle corresponding to an inner portion of the upper surface of the head 10. Furthermore, the inner bristle 300 is configured to be shorter than the outer bristle 200. Accordingly, as illustrated in FIG. 4a, the outer bristle 200 and the inner bristle 300 embedded in the upper surface of the head 10 are configured as a structure arranged to have a roughly V-shaped cross section.

[0066] In addition, as illustrated in FIG. 4a, the first bristle 310 and the second bristle 320 of the inner bristle 300 also have the first and second embossments 312 and 322 provided, respectively, on the outer circumferential surfaces thereof in the same way as described above. The plurality of first embossments 312 is preferably formed to have a changing outer diameter to be tapered, and the plurality of second embossments 322 is preferably formed to have the same outer diameter.

[0067] Hereinafter, the operation of the toothbrush according to the second embodiment of the present invention configured as described above will be described in detail with reference to FIGS. 4a to 4c.

[0068] Referring to FIG. 4b, the outer bristle 200 is embedded in a column or in multiple columns at a position corresponding to an outer portion of the head 10, and the inner bristle 300 is embedded in a column or in multiple columns at a position corresponding to the inner portion of the head 10.

[0069] FIG. 4c is a view illustrating a state in which the toothbrush of the present invention approaches a surface of the tooth 1 to which a dental brace 3 is mounted for scraping the surface. As illustrated in FIG. 4c, the outer bristle 200 is positioned to scrape the surface of the tooth 1, and the inner bristle 300 is positioned to scrape the dental brace 3.

[0070] In the same state as FIG. 4c, when a user scrapes tooth by pushing the toothbrush in the forward and backward directions or in the left and right directions of the tooth 1 by grasping the handle, the fine end portion 211 of the first bristle 210 of the outer bristle 200 is inserted between the teeth 1, and removes food remnants stuck therebetween by pushing or scraping the food remnants, and the plurality of first embossments 212 scrapes and removes food remnants which are not removed by the fine end portion 211 in an axial direction thereof, or scrapes and removes food remnants remaining on the surface of the tooth 1.

[0071] Along with this, the flat end portion 221 of the second bristle 220 of the outer bristle 200 scrapes and removes food remnants remaining on the surface of the tooth 1 in a direction orthogonal to an axis thereof, and the second embossment 222 scrapes and removes food remnants remaining on the surface of the tooth 1 in an axial direction thereof.

[0072] Meanwhile, the fine end portion 311 of the first bristle 310 of the inner bristle 300 removes food remnants stuck between the outer surface of the dental brace 3 and the tooth 1 by pushing or scraping the food remnants, and the first embossment 312 scrapes and removes food remnants which are not removed by the fine end portion 311 in an axial direction thereof, or scrapes and removes food remnants remaining on the surface of the dental brace 3 in the axial direction thereof.

[0073] At the same time, the flat end portion 321 of the second bristle 320 of the inner bristle 300 scrapes and removes food remnants remaining on the surface of the dental brace 3 in a direction orthogonal to an axis thereof, and the second embossment 322 scrapes and removes food remnants remaining on the surface of the dental brace 3 in an axial direction thereof.

[0074] As described above, according to the toothbrush of the present invention, end portions of the outer bristle 200 and the inner bristle 300 embedded in the upper surface of the head 10 to be orthogonal thereto are configured to have a V-shape, thereby minimizing discomfort such as enamel wear, gum injury, and bristle loss.

[0075] In addition, due to the embossments, the toothbrush of the present invention more efficiently removes food remnants remaining on the surfaces of the tooth 1 and the dental brace 3, and has elasticity, thereby having excellent resilience, and increasing the amount of foam produced during the use of toothpaste to further maintain freshness in the mouth due to spaces between the first embossments 212, 312 and between the second embossments 222, 322.

[0076] FIG. 5 illustrates a perspective view of a toothbrush and an enlarged view of "C" part thereof according to a third embodiment of the present invention.

[0077] As illustrated in FIG. 5, a toothbrush according to the third embodiment of the present invention further includes molar bristles 400 embedded in an outer portion of a surface of the head, each of the molar bristles having multiple unit bristles 410 configured to be inclined downward inward in end portions thereof.

[0078] Here, it is more preferable for brushing a molar that the molar bristles 400 are provided on the corner portion of the surface of the head 10, a bundle of the molar bristles being provided in multiple columns.

[0079] In addition, the unit bristles 410 of one molar bristle 400 have the shape of a downward inclination of gradually declining inward in end portions thereof, and each molar bristle 400 provided by being spaced apart from each other in multiple columns also has the shape of a downward inclination inward (toward the toothbrush bristle 100) in the end portion thereof, so the brushing of the molar becomes natural, and food remnants remaining on the molar are reliably removed.

[0080] Each unit bristle 410 of the molar bristle 400 may be a regular bristle having a flat end portion 411, or a fine bristle having a fine end portion.

[0081] Meanwhile, it is more advantageous for brush-

ing the molar that the length of each molar bristle 400 configured in a bundle is configured to be shorter than the length of the toothbrush bristle 100 composed of the pair of the first bristle 110 and the second bristle 120, which is provided at a side thereof.

[0082] Of course, each unit bristle 410 has an elastic force due to a third embossment 412 provided on the outer circumferential surface thereof, and thus may have the function to be restored to an initial shape thereof after tooth brushing.

[0083] FIG. 6 is a top plan view of the toothbrush according to a fourth embodiment of the present invention, and is substantially the same as the example of FIG. 5 except for a toothbrush bristle 500 for an implant for a person who has an implant.

[0084] That is, as illustrated in FIG. 6, a bundle of the toothbrush bristles 500 for an implant, each of the toothbrush bristles having a pair of the first and second bristle, is configured to be formed in longitudinal direction of the head only in two columns at the middle of the surface of the head 10 so as to be used as a toothbrush only for a person who has an implant.

[0085] Of course, in the same way as the example of FIG. 5, the molar bristles 400 are provided in a bundle on the corner portion of the surface of the head 10, and in multiple columns.

[0086] Here, the bundle of the molar bristles 400 may also be formed in two columns in the longitudinal directions of the head alongside the bundle of the toothbrush bristles 500 at the middle of the head 10.

[0087] The embodiments of the present invention described above are merely exemplary, and a person having ordinary knowledge in a technical field to which the present invention belongs may recognize that various modifications and other equivalent embodiments are possible therefrom.

[0088] Therefore, it will be understood that the present invention is not limited only to the form mentioned in the detailed description above.

[0089] Therefore, the true technical protection scope of the present invention should be determined by the technical spirit of the appended claims.

[0090] In addition, it should be understood that the present invention includes all modifications, equivalents, and alternatives within the spirit and scope of the present invention as defined by the appended claims and within the scope.

Industrial Applicability

[0091] The present invention provides the toothbrush which has pairs of bristles configured in a bundle, each of the pair of bristles being composed of the first bristle having the fine end portion and the second bristle having the flat end portion, thereby more efficiently removing all food remnants which remain between teeth and on the surfaces of teeth, and efficiently removing food remnants stuck between teeth and dental braces even when the dental braces are installed on the teeth. Accordingly, the toothbrush of the present invention will be usefully used in a toothbrush area.

Claims

1. A toothbrush composed of a head and a handle connected to an end of the head, the toothbrush comprising:
   toothbrush bristles configured in a bundle, each of the toothbrush bristles composed of a first bristle having a fine end portion corresponding to space between teeth, and a second bristle provided at an inner side of the first bristle and having a flat end portion corresponding to a surface of tooth, the toothbrush bristles being arranged in multiple columns on a surface of the head.

2. The toothbrush of claim 1, wherein each of the toothbrush bristles is configured by being divided into an outer bristle configured as a pair of a first bristle and a second bristle and embedded in an outer portion of the surface of the head, and an inner bristle configured as a pair of a first bristle and a second bristle and embedded in the head to be arranged at an inner side of the outer bristle.

3. The toothbrush of claim 2, wherein the outer bristle and the inner bristle are configured to have different lengths so as to be arranged to have a V-shaped cross section.

4. The toothbrush of claim 1, further comprising:
   molar bristles embedded in multiple columns in an outer portion of the surface of the head, each of the molar bristles having multiple unit bristles configured in a bundle and inclined downward inward in end portions thereof.

5. The toothbrush of claim 4, wherein the molar bristle is a regular bristle or a fine bristle, and each of the toothbrush bristles is a fine bristle.

6. The toothbrush of claim 5, wherein the molar bristle is configured in the bundle on a corner portion of the surface of the head, and provided in the multiple columns.

7. The toothbrush of claim 1 or 2, wherein the first bristle is configured to taper in a direction of an outer end portion thereof.

8. The toothbrush of claim 1 or 2, wherein a length of the second bristle having the flat end portion is configured to be shorter than a length of the first bristle.

9. The toothbrush of claim 1 or 2, wherein an emboss-

ment is provided on each of outer circumferential surfaces of the first bristle and the second bristle.

10. The toothbrush of claim 4, wherein an embossment is provided on an outer circumferential surface of the molar bristle.

11. The toothbrush of claim 4, wherein each of the unit bristles of the molar bristle has a flat end portion provided on an upper end thereof.

12. The toothbrush of claim 4 or 5, wherein the bundle of the toothbrush bristles composed of the pair of the first and second bristles and the bundle of the molar bristles are configured in longitudinal directions of the head only in two columns at a middle of the surface of the head.

FIG. 1

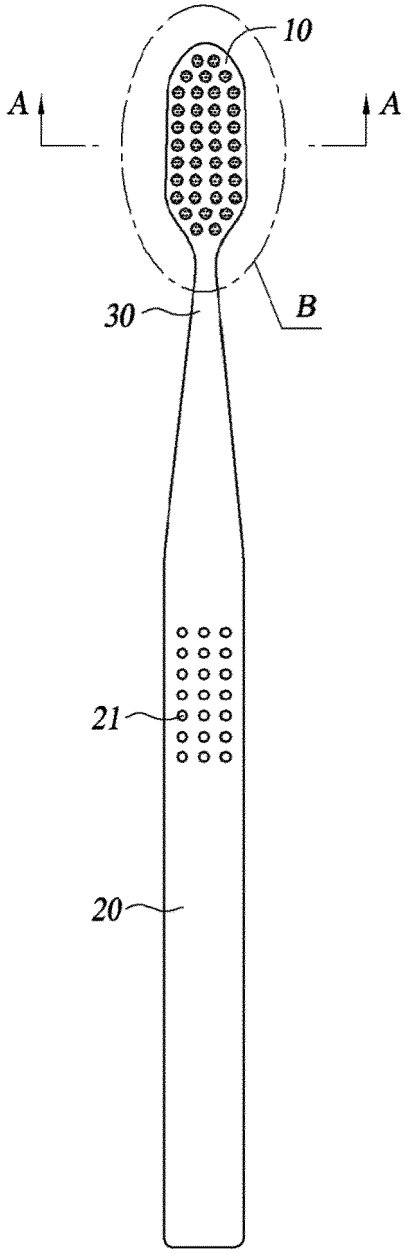

FIG. 2

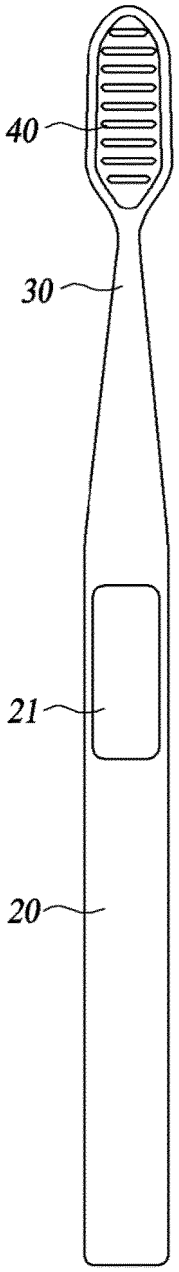

FIG. 3A

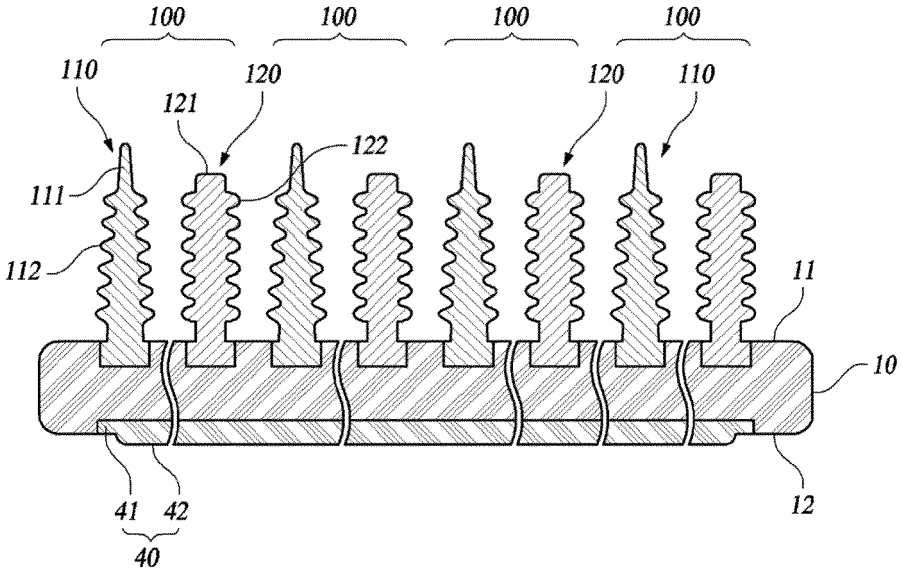
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FIG. 3B

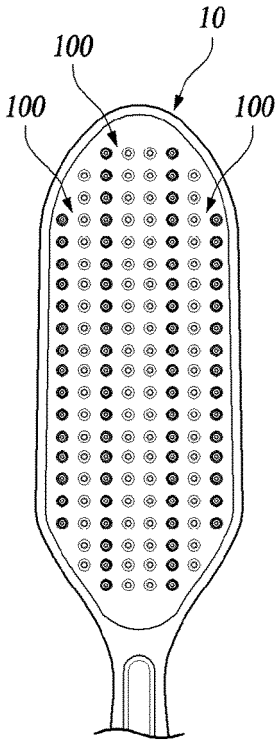
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FIG. 3C

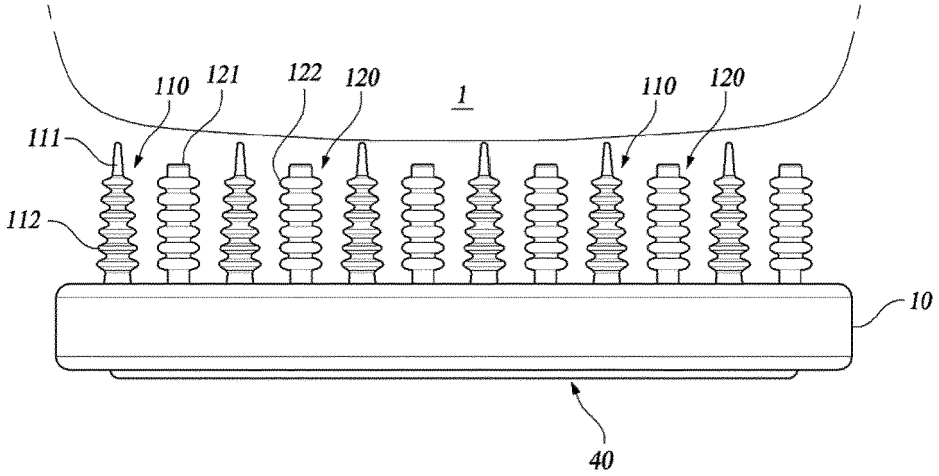
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FIG. 4A

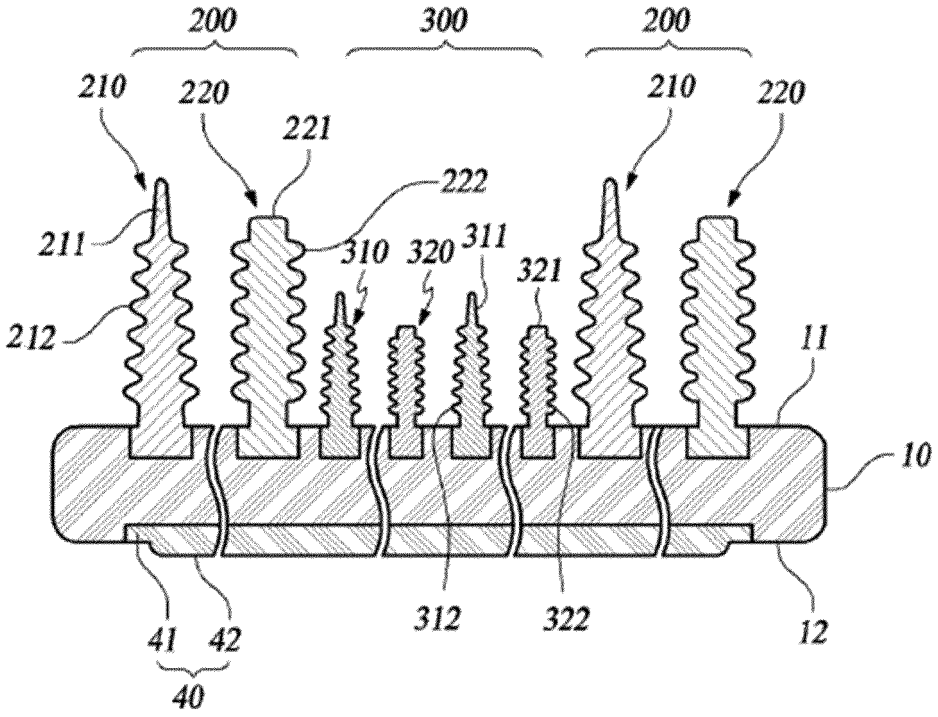
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FIG. 4B

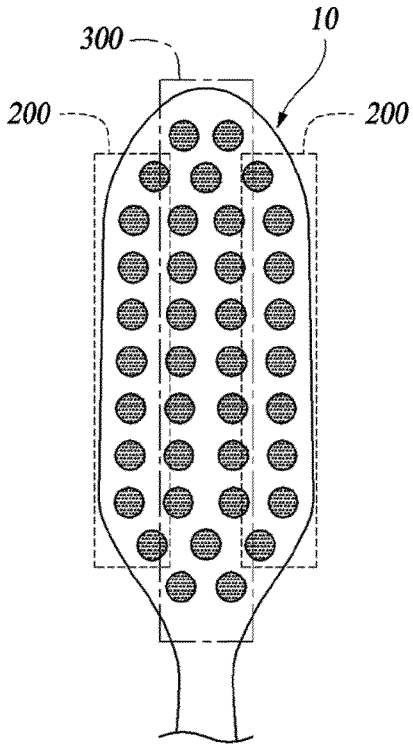

FIG. 4C

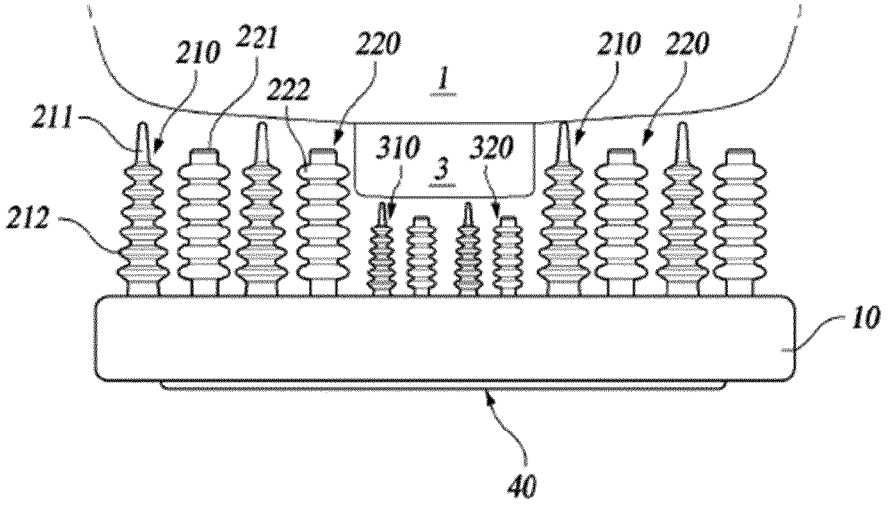

FIG. 5

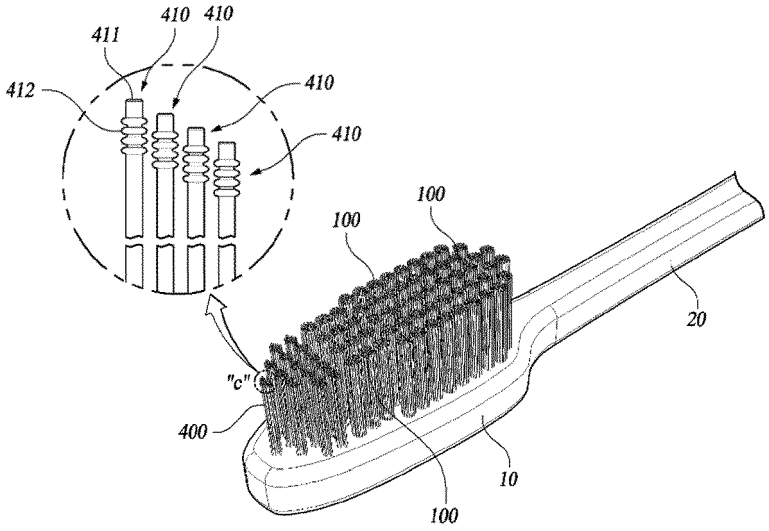
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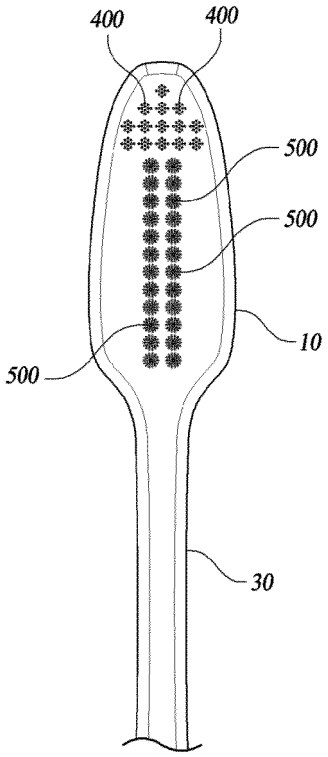
FIG. 6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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2018/010602

A. CLASSIFICATION OF SUBJECT MATTER

A46B 9/02(2006.01)i, A46B 9/04(2006.01)i, A46B 15/00(2006.01)i, A46D 1/00(2006.01)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)
A46B 9/02; A46B 9/04; A46D 1/00; A46B 15/00

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: IPC as above
Japanese utility models and applications for utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS (KIPO internal) & Keywords: toothbrush, tooth, plaque, correction, molar, interval, fine brush, inclination, bunch, general brush

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	얄룽. 셀프 스케일링 모던 라이프 칫솔 입고!. 네이버 블로그. 09 June 2017, non-official translation (YALLOONG. Warehousing of Self Scaling Modern Life Toothbrush!. Naver blog). Retrieved from: <URL: https://blog.naver.com/yalloong/221025425652> See pages 1-11.	1,7-9
Y		2-6,10-12
Y	KR 10-1444003 B1 (CHOIE, Soon Kyoo) 23 September 2014 See paragraphs [0016]-[0017]; and figure 3.	2-3
Y	KR 20-2012-0003796 U (AMOREPACIFIC CORPORATION) 01 June 2012 See paragraphs [0011], [0029]; and figures 1, 4, 7.	4-6,10-12
A	KR 10-2013-0136912 A (LG HOUSEHOLD & HEALTH CARE LTD.) 13 December 2013 See paragraph [0017]; and figure 1.	1-12
A	KR 10-2017-0062779 A (LG HOUSEHOLD & HEALTH CARE LTD.) 08 June 2017 See paragraphs [0022]-[0027]; and figures 2-4.	1-12

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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"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	Date of mailing of the international search report
28 DECEMBER 2018 (28.12.2018)	**28 DECEMBER 2018 (28.12.2018)**
Name and mailing address of the ISA/KR Korean Intellectual Property Office Government Complex Daejeon Building 4, 189, Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2018/010602

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		EP 2856908 A1	08/04/2015
		EP 2856908 A4	20/04/2016
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		KR 10-2014-0008710 A	22/01/2014
		US 2015-0150366 A1	04/06/2015
		WO 2013-183908 A1	12/12/2013
KR 10-2017-0062779 A	08/06/2017	CN 206227928 U	09/06/2017

Form PCT/ISA/210 (patent family annex) (January 2015)