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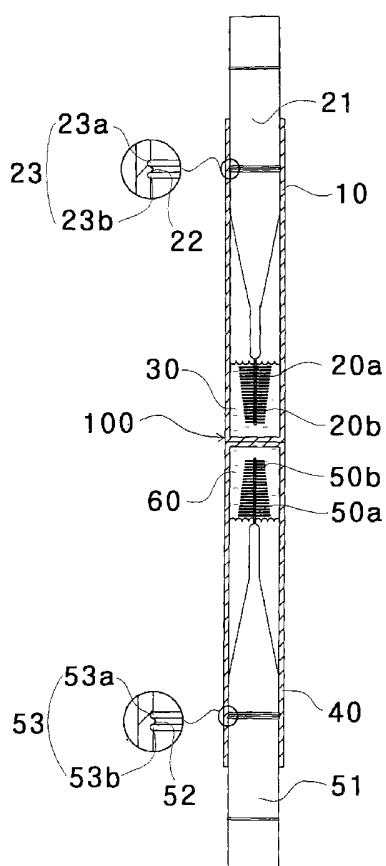
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(54) Title: INTERPROXIMAL BRUSH WITH GARGLE AND DISINFECTANT



(57) Abstract: Disclosed herein is an interproximal brush with gargle and disinfectant. This interproximal brush includes two brush units. The brush units each include a handle having a rectangular cross-section, and an interproximal cleaning means, such as bristles or dental floss, fixed to an end of the handle. The interproximal brush also has a casing including two reception parts. In this case, the reception parts have a hollow box shape for receiving the brush units, and contain gargle and disinfectant therein, respectively. Further, a sealing unit is provided at a position around a mouth of each of the two reception parts. The two reception parts are integrated with each other to form a single structure, and are linearly arranged in a straight line or arranged parallel to each other in such a way that the mouths of the reception parts are opposite to each other or are adjacent to each other.

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INTERPROXIMAL BRUSH WITH GARGLE AND DISINFECTANTTechnical Field

The present invention relates generally to an interproximal brush, and more particularly, to an interproximal brush, which contains gargle and disinfectant, such as mouthwash, thus accomplishing an excellent cleaning effect in addition to protecting the gingiva while brushing a gap between neighboring teeth.

Background Art

As well known to those skilled in the art, an interproximal brush is used for brushing a gap between neighboring teeth, and consists of a handle, and dental floss or bristles similar to those on a brush for cleaning test tubes. In this case, the bristles or the dental floss are fixed to the end of the handle. That is, the interproximal brush is an article for cleaning the gap between neighboring teeth by repeatedly putting and taking the bristles or the dental floss in and out of the gap between the neighboring teeth. Such an interproximal brush is used in a location where it is difficult to remove plaque or food residue remaining in a user's mouth with a general type toothbrush. The interproximal brush is also used for disinfecting the teeth after scaling, and for removing tartar deposited on the teeth due to smoking. Further, the interproximal brush is used to clean orthodontic devices, such as braces for straightening misaligned teeth.

However, the conventional interproximal brush is problematic in that teeth are brushed using only the bristles, thus a user may frequently bleed at the gingival. Further, it is difficult to remove the food residue remaining in the user's mouth. Generally, this interproximal brush is not disposable and has to be repeatedly reused. Due to its repeated use, the brush may have an offensive odor, or bacteria may be propagated on the brush. Therefore, the brush must be frequently disinfected.

An effort has been conducted to combine the interproximal brush with a gargle injection device so as to avoid the above problems, but this effort is disadvantageous in that it is difficult to produce the resulting interproximal brush and

the resulting interproximal brush is not portable because of its complicated and large structure.

Disclosure of the Invention

Accordingly, the present invention has been made keeping in mind the above
5 problems occurring in the prior art, and an object of the present invention is to provide
an interproximal brush, in which bristles of the interproximal brush are submerged in
gargle, thus being easily disinfected, and which is designed to easily supply gargle to a
brushed portion of the mouth while brushing a gap between neighboring teeth, thus
improving the cleaning effect in addition to protecting the user's gingival. Another
10 object of the present invention is to provide an interproximal brush, which has a
casing consisting of two reception parts such that gargle and disinfectant are contained
in the two reception parts, respectively, thus easily cleaning and disinfecting, and
which is designed to easily supply the gargle and/or the disinfectant to a brushed
portion while brushing a gap between neighboring teeth, thus accomplishing an
15 improved cleaning effect in addition to protecting the user's gingiva, and which is
designed in such a way as to easily carry several interproximal brushes.

In order to accomplish the above objects, the present invention provides an
interproximal brush with gargle, including a cleansing part equipped with a core and
bristles radially attached to the core to clean a gap between neighboring teeth, a handle
20 extended from the cleansing part, a casing receiving the cleansing part and gargle in
such a way that the cleansing part is submerged in the gargle, a locking projection
including an upper and a lower locking part provided on any one surface of an outer
circumferential surface of the handle and an inner circumferential surface of the
casing, and a locking ring provided on the other surface of the outer circumferential
25 surface of the handle and the inner circumferential surface of the casing, on which the
locking projection is not provided. At this time, the locking ring is engaged with a
gap between the upper and lower locking part.

Additionally, the present invention provides an interproximal brush with
gargle, including a cleansing part equipped with a core and bristles radially attached to
30 the core to clean a gap between neighboring teeth, a handle extended from the

cleansing part, and a casing receiving the cleansing part and gargle in such a way that the cleansing part is submerged in the gargle. Furthermore, the handle is screwed into the casing when the cleansing part is inserted into the casing.

Moreover, the present invention provides an interproximal brush with gargle,
5 including a cleansing part equipped with a core and bristles radially attached to the core to clean a gap between neighboring teeth, and a handle extended from the cleansing part. A casing receives the cleansing part and gargle in such a way that the cleansing part is submerged in the gargle, and a packing member, on which an elastically, openable hole is formed, prevents the gargle from leaking when the
10 cleansing part is inserted into the casing. Preferably, the outer circumferential surface of the packing member is locked to a groove formed on the inner circumferential surface of the casing.

Furthermore, the above objects can be accomplished by providing an interproximal brush, including two brush units each consisting of a handle having a
15 rectangular cross-section, and an interproximal cleaning means, such as bristles or a dental floss, fixed to an end of the handle, and a casing consisting of two reception parts, the reception parts having a hollow box shape for receiving the brush units, and containing gargle and disinfectant therein, respectively, with a sealing unit being provided at a position around a mouth of each of the two reception parts.

20 According to the present invention, the two reception parts are integrated with each other to form a single structure, and are linearly arranged in a straight line in such a way that the mouths of the reception parts are opposite to each other.

As well, the two reception parts are integrated with each other to form a single structure, and are arranged in parallel to each other in such a way that the
25 mouths of the reception parts are adjacent to each other.

In addition, the sealing unit consists of a locking ring with a locking groove provided on the inner circumferential surface of each of the two reception parts at a position adjacent to the mouth of each reception part, and holding the brush unit, and a locking projection provided on the outer circumferential surface of the handle of each
30 brush unit at a midsection thereof.

Further, the sealing unit includes rubber or silicone attached to both the inner circumferential surface of each reception part and the outer circumferential surface of

the handle of each brush unit.

According to the present invention, an elastic packing member with a hole is provided in a reception part so as to prevent the gargle and the disinfectant from leaking from the reception part. Preferably, the outer circumferential surface of the packing member is fitted into a groove formed on the inner circumferential surface of the casing.

Furthermore, the handle is provided at one end thereof with bristles or dental floss and provided at the other end with an opening for receiving another brush unit.

Therefore, the interproximal brush of the present invention is advantageous in that users can conveniently carry gargle such as mouthwash or disinfectant in conjunction with the brush, and the gargle is conveniently supplied to a brushed portion of teeth while brushing the teeth. Further, the interproximal brush contains both gargle and disinfectant, and allows a user to carry several brush units.

Brief Description of the Drawings

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is an exploded perspective view showing an interproximal brush with gargle according to the first modification of the primary embodiment of the present invention;

Fig. 2 is a sectional view of the interproximal brush shown in Fig. 1, in which a cleansing part of the interproximal brush is received in a casing;

Fig. 3 is a sectional view of an interproximal brush with gargle according to the second modification of the primary embodiment of the present invention;

Fig. 4 is an exploded perspective view of an interproximal brush with gargle according to the third modification of the primary embodiment of the present invention;

Fig. 5 is a sectional view of the interproximal brush of Fig. 4, in which a cleansing part of the interproximal brush is received in a casing;

Fig. 6 is an exploded perspective view showing an interproximal brush with

gargle and disinfectant according to the first modification of the secondary embodiment of the present invention;

Fig. 7 is an exploded perspective view of an interproximal brush with gargle and disinfectant according to the second modification of the secondary embodiment of the present invention;

Fig. 8 is a sectional view of the interproximal brush shown in Fig. 6 or Fig. 7, in which brush units of the interproximal brush are received in a casing;

Fig. 9 is a sectional view of an interproximal brush with gargle and disinfectant according to the third modification of the secondary embodiment of the present invention;

Fig. 10 is an exploded perspective view of an interproximal brush with gargle and disinfectant according to the fourth modification of the secondary embodiment of the present invention;

Fig. 11 is a sectional view of the interproximal brush of Fig. 10, in which brush units of the interproximal brush are received in a casing;

Fig. 12 is a view of the interproximal brush according to the present invention, when the interproximal brush is packaged;

Figs. 13a to 13c are exploded perspective views showing interproximal brushes with gargle and disinfectant according to the fifth modification of the secondary embodiment of the present invention; and

Fig. 14 is an exploded perspective view of an interproximal brush with gargle and disinfectant according to the sixth modification of the secondary embodiment of the present invention.

Best Mode for Carrying Out the Invention

Reference should now be made to the drawings, in which the same reference numerals are used throughout the different drawings to designate the same or similar components.

Fig. 1 is an exploded perspective view showing an interproximal brush with gargle according to the first modification of the primary embodiment of the present invention, and Fig. 2 is a sectional view of the interproximal brush shown in Fig. 1, in

which a cleansing part of the interproximal brush is received in a casing. As shown in the drawings, the interproximal brush according to the present invention includes a cleansing part 2, a handle 3 for supporting the cleansing part 2, and a casing 1 for receiving the cleansing part 2 and gargle 7.

5 A member usually used in the traditional interproximal brush is adopted as the cleansing part 2. That is to say, the cleansing part 2 includes a core 2a made of plastic or a thin wire, and bristles 2b radially attached to the core 2a. In the case of using the core 2a made of the wire, the material is preferably stainless steel so as to prevent the wire from oxidizing. Additionally, it is preferable that the bristles 2b are
10 made of a material which is soft at a tip and has appropriate elasticity.

The handle 3 is produced using various kinds of synthetic resins through a molding process, and support the core 2a of the cleansing part 2. In addition, the handle 3 may insert holes such that the core 2a is removably held in the handle 3. Further, the core 2a may be fixed to the handle 3 through a welding process.

15 The cleansing part 2 is submerged in the gargle 7 received in the casing 1 to be disinfected and protected. At this time, it is preferable to use a mouthwash for providing a fragrance and sterilizing a user's mouth, disinfectant, whitener, or calcium dissolving solution disclosed in U.S. Pat. No. 5,834,427 filed by and allowed to this inventor as the gargle 7.

20 The casing 1 is made of plastic, and receives the cleansing part 2 therein. Preferably, a locking ring 4 is provided on the inner circumferential surface of the casing 1, and a locking projection 5 is provided on the outer circumferential surfaces of the handle 3. By using the locking ring and locking projection, it is possible to prevent the gargle 7 from leaking out of the casing 1 and to prevent the cleansing part
25 2 from being undesirably removed from the casing 1. Further, the locking projection 5 includes an upper locking part 5a causing the handle 3 to be inserted into the casing 1 by a predetermined depth, and a lower locking part 5b for preventing the handle 3 from being easily separated from the casing 1. In this case, a variety of structures may be used, without being limited to the above structure, to lock the handle 3 in the
30 casing 1 while preventing the gargle 7 from leaking.

In the use of the interproximal brush according to the present invention, the gargle 7 is supplied into the casing 1, and the handle 3 is then pushed into the casing 1

until the cleansing part 2 is submerged in the gargle 7. At this time, the lower locking part 5b of the handle 3 passes over the locking ring 4 of the casing 1. The locking ring 4 is locked between the upper and lower locking parts 5a and 5b, such that the handle 3 is held in the casing 1 and the gargle 7 is prevented from leaking out from the casing 1. Further, the cleansing part 2 is submerged in the gargle 7 when the bristles 2b are not in use, thus killing any bacteria on the cleansing part 2. When one desires to brush a gap between neighboring teeth using the interproximal brush carried with a user, the user grasps the casing 1 and pulls the handle 3 out from the casing 1. In this regard, the lower locking part 5b passes over the locking ring 4, and the handle 3 and cleansing part 2 are then taken out from the casing 1. At this time, the bristles 2b are covered with the gargle 7, thus enhancing the cleaning effect in addition to protecting the gingiva.

Fig. 3 is a sectional view of an interproximal brush with gargle according to the second modification of the primary embodiment of the present invention. According to the second modification of the primary embodiment of the present invention, the gargle 7 and cleansing part 2 used in Fig. 2 are useful, and the handle 3 is screwed into the casing 1 to prevent the gargle from leaking from the casing 1 and to lock the cleansing part in the casing 1. In other words, the handle 3 is externally threaded and the casing 1 is internally threaded, thereby submerging the cleansing part 2 in the gargle 7 received in the casing 1 and preventing the gargle 7 from leaking from the casing 1.

Fig. 4 is an exploded perspective view of an interproximal brush with gargle according to the third modification of the primary embodiment of the present invention, and Fig. 5 is a sectional view of the interproximal brush of Fig. 4, in which a cleansing part of the interproximal brush is received in a casing. According to the third modification of the primary embodiment of the present invention, the gargle 7 and cleansing part 2 used in Fig. 2 provide a direct benefit.

At this time, a packing member 8 is provided in the casing 1 so as to prevent a leakage of the gargle 7 from the mouth of the casing 1. In this regard, there may be several methods of fixing the packing member 8 in the casing 1. Of such methods, it is preferable to adopt a method that the packing member 8 made of an elastic material, such as rubber, is pushed into the casing 1 such that the outer circumferential surface

of the packing member 8 is locked to a groove 9 formed on the inner circumferential surface of the casing 1.

Meanwhile, an elastically openable hole is formed on the packing member 8 so as to prevent the gargle 7 from leaking and to allow the bristles 2b to be put into and taken out of the casing 1. That is to say, the hole of the packing member 8 is normally constricted. However, when the core 2a with the bristles 2b passes through the hole for soaking the bristles 2b in the gargle 7, the diameter of the hole increases while preventing the gargle 7 from leaking.

When one desires to use the interproximal brush according to the third modification of the primary embodiment, first, a tool, such as a syringe, is inserted into the hole of the packing member 8 to inject the gargle 7 into the casing 1. The handle 3 is then pushed into the casing 1 until the cleansing part 2 is soaked with the gargle 7 after passing through the hole of the packing member 8. In this case, the packing member 8 is made of an elastic material. Therefore, it is constricted airtight, thus preventing the gargle 7 from leaking. When it is desired to brush a gap between neighboring teeth using the interproximal brush carried with a user, the user grasps the casing 1 and pulls the handle 3 out from the casing 1. At this time, the cleansing part 2 fixed to the handle 3 passes through the hole of the packing member 8 and then is taken out from the casing 1. In this case, the food residue remaining in the user's mouth as well as plaque are removed by repeatedly forcing the bristles 2b in and out of the gap between neighboring teeth. In this regard, the bristles 2b are covered with the gargle 7, thus effectively removing bacteria and bad breath from the user's mouth without doing harm to the gingiva. In addition, the user can secure an improved cleaning effect using an abrasive agent, as desired.

Fig. 6 is an exploded perspective view showing an interproximal brush with gargle and disinfectant according to the first modification of the secondary embodiment of the present invention, Fig. 7 is an exploded perspective view of an interproximal brush with gargle and disinfectant according to the second modification of the secondary embodiment of the present invention, and Fig. 8 is a sectional view of the interproximal brush shown in Fig. 6 or Fig. 7, in which brush units of the interproximal brush are received in a casing.

As shown in the drawings, the interproximal brush includes two brush units

and a casing 100. One of the two brush units consists of a handle 21 and bristles 20b, while the other brush unit consists of a handle 51 and bristles 50b. In this case, the handles 21 and 51 are rectangular. The bristles 20b are fixed to a core 20a which is provided at an end of the handle 21, and the bristles 50b are fixed to a core 50a which is provided at an end of the handle 51. The casing 100 consists of two reception parts 10 and 40. The two reception parts 10 and 40 have a hollow box shape for receiving the brush units, and contain gargle 30 and disinfectant 60 therein, respectively. The reception parts 10 and 40 are in close contact with the brush units, at the mouths of the reception parts 10 and 40, in order to prevent the gargle 30 and the disinfectant 60 from leaking. Further, the two reception parts 10 and 40 are integrated with each other to form a single structure, and are linearly arranged in a straight line in such a way that the mouths of the reception parts 10 and 40 are opposite to each other.

The cores 20a and 50a are made of plastic or a thin wire. In the case of making the cores 20a and 50a using a thin wire, the wire is preferably made of stainless steel for the prevention of oxidization. Furthermore, it is preferable that the bristles 20b and 50b are made of a material which is soft at a tip and has appropriate elasticity.

The handles 21 and 51 are produced using various kinds of synthetic resins through a molding process, and support the cores 20a and 50a. In addition, the handles 21 and 51 may have insert holes such that the cores 20a and 50a are removably held in the handles 21 and 51, respectively. Further, the cores 20a and 50a may be fixed to the handles 21 and 51 through a welding process, respectively.

A sterile solution containing salt roasted in bamboo, a sterile saline solution, or a mouthwash is used as the gargle 30 contained in the reception part 10. The gargle 30 or disinfectant 60 may contain xylitol, Casein Phospeptide (CPP), or Casein Phospho Peptide (CPP-H) disclosed in Korean Patent No. 0140248 filed by and allowed to this inventor. The CPP-H is a substance aiding absorption of calcium contained in milk, and is different from the conventional CPP in the type, sequence and high-order structure of its amino acid. The CPP-H has a superior calcium dissolving capacity in comparison with the CPP, thus effectively removing tartar from the teeth. Further, the disinfectant 60 contains an aromatic substance using mint,

fruit, or lilac essence, thus allowing a user to feel refreshed.

The reception parts 10 and 40 are made of plastic, and receive the bristles 20b and 50b therein, respectively. Preferably, a locking ring 22 or 52 with two locking grooves is provided on the inner circumferential surface of each reception part 10 or 40, and locking projections 23 and 53 are provided on the outer circumferential surfaces of the handles 21 and 51, respectively. Due to an engagement of the locking grooves with the locking projections, it is possible to prevent the gargle 30 and the disinfectant 60 from leaking out of the reception parts 10 and 40 and to prevent the bristles 20b and 50b from being undesirably removed from the reception parts 10 and 40. Further, the locking projection 23 consists of an upper locking part 23a and a lower locking part 23b, while the locking projection 53 consists of an upper locking part 53a and a lower locking part 53b. In this case, the upper locking parts 23a and 53a are used for stopping the brush units when they are inserted into the reception parts 10 and 40 by a predetermined depth. Meanwhile, the lower locking parts 23b and 53b are used for preventing the brush units from being undesirably removed from the reception parts 10 and 40. In this case, a variety of structures may be used, without being limited to the above structure, for locking the handles 21 and 51 in the reception parts 10 and 40 while preventing the gargle 30 and the disinfectant 60 from leaking. For example, rubber or a silicone may be provided to both the inner circumferential surface of each reception part 10 or 40 and the outer circumferential surface of each handle 21 or 51, that is, the portion where the handle 21 or 51 is in contact with the reception part 10 or 40.

As shown in Figs. 6 and 7, the reception parts 10 and 40 and the handles 21 and 51 have a rectangular cross-section or a triangular cross-section, resulting in angular corners. When the gargle 30 and/or the disinfectant 60 is almost used up, the gargle 30 and/or the disinfectant 60 is collected on the angular corners, thus completely consuming the gargle 30 and/or the disinfectant 60, therefore being effective and economical to use. Since the sidewall of the casing 10 is flat, anything, including a trademark, can be easily attached to the casing 10. Further, as shown in Fig. 12, a plurality of interproximal brushes may be packaged together in a tetragonal shape or a trapezoid shape, thus allowing for easy and compact storage and packaging in comparison with conventional interproximal brushes having rounded sidewalls.

In Fig. 8, the reception part 40 containing the disinfectant 60 is placed upside down. In this case, the disinfectant 60 may be spilled. But, Fig. 8 is only an example used to easily describe the construction of the interproximal brush according to this invention. The interproximal brush of this invention normally lies at a predetermined position, or is placed while repeatedly changing its standing direction. Further, it is possible to use the interproximal brush by shaking it. Thus, the interproximal brush is always covered with the gargle or the disinfectant.

Fig. 9 is a sectional view of an interproximal brush with gargle and disinfectant according to the third modification of the secondary embodiment of the present invention. In Fig. 9, the reception part 10 containing the gargle 30 and the reception part 40 containing the disinfectant 60 are horizontal and parallel to each other.

In this case, in order to easily distinguish the gargle 30 from the disinfectant 60, it is preferable that the casing 10 is made of a transparent material, and that the gargle 30 and the disinfectant 60 have different colors.

When one desires to use the interproximal brush constructed in this way, the gargle 30 and the disinfectant 60 are supplied to the reception parts 10 and 40, respectively. Next, the bristles 20b and 50b are pushed in the reception parts 10 and 40, respectively, until the bristles 20b and 50b are soaked in the gargle 30 and the disinfectant 60. At this time, the lower locking parts 23b and 53b of the handles 21 and 51 pass over the locking rings 22 and 52. The locking ring 22 is locked between the upper and lower locking parts 23a and 23b, while the locking ring 52 is locked between the upper and lower locking parts 53a and 53b, such that the handles 21 and 51 are held in the reception parts 10 and 40, and the gargle 30 and the disinfectant 60 are prevented from leaking from the casing 10. Further, the bristles 20b and 50b are soaked in the gargle 30 and the disinfectant 60 when the brush is not in use, thus preventing the propagation of bacteria. When one desires to brush a gap between neighboring teeth using the interproximal brush carried with a user, the user catches the reception parts 10 and 40 and pulls the handles 21 and 51 out from the reception parts 10 and 40. At this time, the lower locking parts 23b and 53b pass over the locking rings 22 and 52, and then the handles 21 and 51 are taken out from the reception parts 10 and 40, respectively. In this case, the bristles 20b and 50b are

covered with the gargle 30 and the disinfectant 60, respectively, thus enhancing a cleaning effect in addition to protecting the gingiva.

Figs. 10 and 11 show an interproximal brush according to the fourth modification of the secondary embodiment of the present invention. As shown in the drawings, two packing members 15 and 45 are provided in the two reception parts 10 and 40, respectively, so as to prevent a leakage of the gargle 30 and the disinfectant 60 from the mouths of the reception parts 10 and 40. In this case, there may be several methods of fixing the packing members 15 and 45 to the reception parts 10 and 40. It is preferable that the packing members 15 and 45 made of an elastic material, such as rubber, are pushed into the reception parts 10 and 40 such that the outer circumferential surfaces of the packing members 15 and 45 are locked to grooves 16 and 46 formed on the inner circumferential surfaces of the reception parts 10 and 40, respectively.

An elastically openable hole is formed on each of the packing members 15 and 45 so as to prevent the gargle 30 and the disinfectant 60 from leaking and to allow the bristles 20b and 50b to be put into and taken out of the reception parts 10 and 40, respectively. That is, the holes of the packing members 15 and 45 are normally constricted. However, when the core 20a with the bristles 20b and the core 50a with the bristles 50b pass through the holes for soaking the bristles 20b in the gargle 30 and soaking the bristles 50b in the disinfectant 60, the diameters of the holes increase while preventing the gargle 30 and the disinfectant 60 from leaking.

When one desires to use the interproximal brush according to the fourth modification of the secondary embodiment, first, a tool, such as a syringe, is inserted into the holes of the packing members 15 and 45 to inject the gargle 30 and the disinfectant 60 into the reception parts 10 and 40, respectively. The handles 21 and 51 are pushed into the reception parts 10 and 40, respectively, until the bristles 20b and 50b are soaked with the gargle 30 and the disinfectant 60 after passing through the holes of the packing members 15 and 45. In this case, the packing members 15 and 45 are made of an elastic material. Therefore, they are constricted without a gap, thus preventing the gargle 30 and the disinfectant 60 from leaking. When it is desired to brush a gap between neighboring teeth using the interproximal brush carried with a user, the user catches the reception parts 10 and 40 and pulls the handles 21 and

51 out from the reception parts 10 and 40. At this time, the bristles 20b and 50b fixed to the handles 21 and 51 pass through the holes of the packing members 15 and 45 and then are taken out from the reception parts 10 and 40, respectively. In this case, the food residue remaining in the user's mouth as well as plaque are removed by repeatedly putting the bristles 20b and 50b in and taking the bristles 20b and 50b out of the gap between neighboring teeth. At this time, the bristles 20b and 50b are covered with the gargle 30 and the disinfectant 60, thus effectively removing bacteria and bad breath from the user's mouth without harming the gingiva. In addition, the user can selectively use the bristles 20b with the gargle 30 or the bristles 50b covered with the disinfectant 60, as desired.

Figs. 13a to 13c are exploded perspective views showing interproximal brushes with gargle and disinfectant according to the fifth modification of the secondary embodiment of the present invention. The handles 21 and 51 of the brush unit 200 are provided at their ends with openings 21a and 51a, respectively, for receiving another brush unit 300. Such a construction allows a user to carry a plurality of brush units at one time, thus easily replacing a broken or worn-out brush unit with a new one.

Fig. 14 is an exploded perspective view of an interproximal brush with gargle and disinfectant according to the sixth modification of the secondary embodiment of the present invention. This interproximal brush includes two brush units and a casing 100. One of the two brush units consists of a handle 21 and dental floss 20c, while the other brush unit consists of a handle 51 and dental floss 50c. In this case, the handles 21 and 51 have a rectangular cross-section, respectively. The dental floss 20c is supported by a floss support 20d which is provided at an end of the handle 21, and the dental floss 50c is supported by a floss support 50d which is provided at an end of the handle 51. The casing 100 consists of two reception parts 10 and 40. The reception parts 10 and 40 have a hollow box shape for receiving the brush units, and contain gargle 30 and disinfectant 60 therein, respectively. The reception parts 10 and 40 are in close contact with the brush units, at the mouths of the reception parts 10 and 40, to prevent the gargle 30 and the disinfectant 60 from leaking. Further, the two reception parts 10 and 40 are integrated with each other to form a single structure, and are linearly arranged in a straight line in such a way that the mouths of the

reception parts 10 and 40 are opposite to each other.

Industrial Applicability

As described above, the present invention provides an interproximal brush, which contains gargle and disinfectant, thus conveniently supplying the gargle and disinfectant to a brushed portion while brushing a gap between neighboring teeth with the interproximal brush. According to this invention, bristles of the interproximal brush are normally soaked with the gargle and the disinfectant, thus preventing bacteria from propagating, conveniently supplying the gargle, such as a mouthwash, and the disinfectant into a brushed portion without an additional gargle injecting device, and thus protecting the gingiva as well as accomplishing an excellent brushing effect.

Further, according to the interproximal brush of this invention, its reception parts and handles have a rectangular cross-section or a triangular cross-section. Therefore, the gargle and the disinfectant are collected in corners, thus completely utilizing the gargle and the disinfectant, resulting in effective and economical use. In addition, prints or trademarks are easily attached to the sidewall of a casing of the interproximal brush. Further, it is easy to package the interproximal brush. Finally, it is possible to receive a plurality of brush units in the interproximal brush, thus effectively carrying the interproximal brush units.

Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. An interproximal brush with gargle, comprising:
a cleansing part including a core, and bristles radially attached to the core to
clean a gap between neighboring teeth;
5 a handle extended from the cleansing part; and
a casing to receive the cleansing part and gargle in such a way that the
cleansing part is submerged in the gargle,
whereby said handle is removably locked in the casing.

2. The interproximal brush with gargle according to claim 1, wherein a
10 locking projection including an upper and a lower locking part is provided on any one
surface of an outer circumferential surface of the handle and an inner circumferential
surface of the casing, and a locking ring is provided on the other surface of the outer
circumferential surface of the handle and inner circumferential surface of the casing,
on which the locking projection is not provided, said locking ring being engaged with
15 a gap between the upper and lower locking part.

3. The interproximal brush with gargle according to claim 1, wherein the
handle is screwed into the casing when the cleansing part is inserted into the casing.

4. The interproximal brush with gargle according to claim 1, further
comprising a packing member, on which an elastically openable hole is formed, to
20 prevent the gargle from leaking when the cleansing part is inserted into the casing.

5. An interproximal brush with gargle and disinfectant, comprising:
two brush units each including:
a handle having a rectangular cross-section; and
interproximal cleaning means fixed to an end of the handle; and
25 a casing including two reception parts, said reception parts having a hollow
box shape for receiving said brush units, and containing the gargle and disinfectant
therein, respectively, with a sealing unit being provided at a position around a mouth

of each of the two reception parts.

5 6. The interproximal brush with gargle and disinfectant according to claim 5, wherein said two reception parts are integrated with each other to form a single structure, and are linearly arranged in a straight line in such a way that the mouths of the reception parts are opposite to each other.

 7. The interproximal brush with gargle and disinfectant according to claim 5, wherein said two reception parts are integrated with each other to form a single structure, and are arranged parallel to each other in such a way that the mouths of the reception parts are adjacent to each other.

10 8. The interproximal brush with gargle and disinfectant according to claim 5, wherein said sealing unit comprises:

 a locking groove provided on an inner circumferential surface of each of the two reception parts at a position adjacent to the mouth of each reception part, and holding the brush unit; and

15 a locking projection provided on an outer circumferential surface of the handle of each brush unit at a midsection thereof.

 9. The interproximal brush with gargle and disinfectant according to claim 5, wherein said sealing unit comprises rubber or silicone, said rubber or silicone being attached to both the inner circumferential surface of each reception part and the outer circumferential surface of the handle of each brush unit.

 10. The interproximal brush with gargle and disinfectant according to any one of claims 5 to 9, wherein said gargle and disinfectant contain a substance aiding absorption of calcium, such as Casein Phospeptide (CPP) and/or Casein Phispho Peptide (CPP-H).

25 11. The interproximal brush with gargle and disinfectant according to any one of claims 5 to 9, wherein said disinfectant contains an aromatic substance, using mint,

fruit, or lilac essence.

12. The interproximal brush with gargle and disinfectant according to any one of claims 5 to 9, wherein said gargle comprises a sterile solution containing salt roasted in bamboo or a sterile saline solution.

5 13. The interproximal brush with gargle and disinfectant according to claim 5, wherein the handle of each brush unit has an opening for receiving another brush unit.

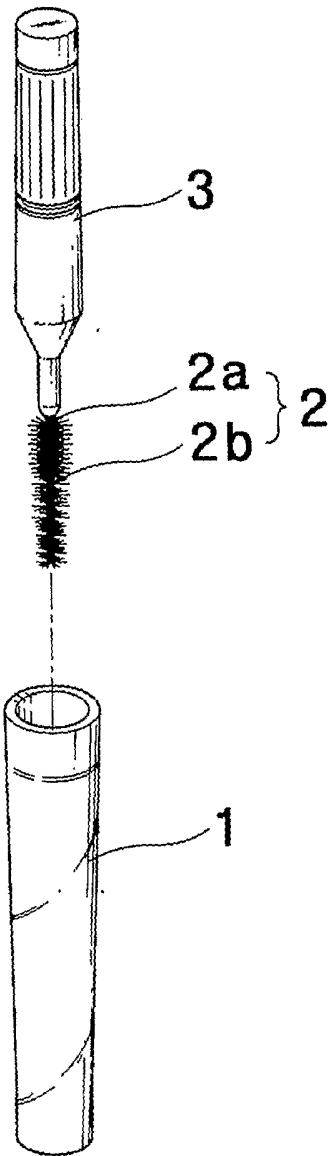
14. An interproximal brush with gargle and disinfectant, comprising:
two brush units each including:

10 a handle having a triangular cross-section;
interproximal cleaning means fixed to an end of the handle; and
a locking projection provided on an outer circumferential surface of the
handle at a midsection thereof;

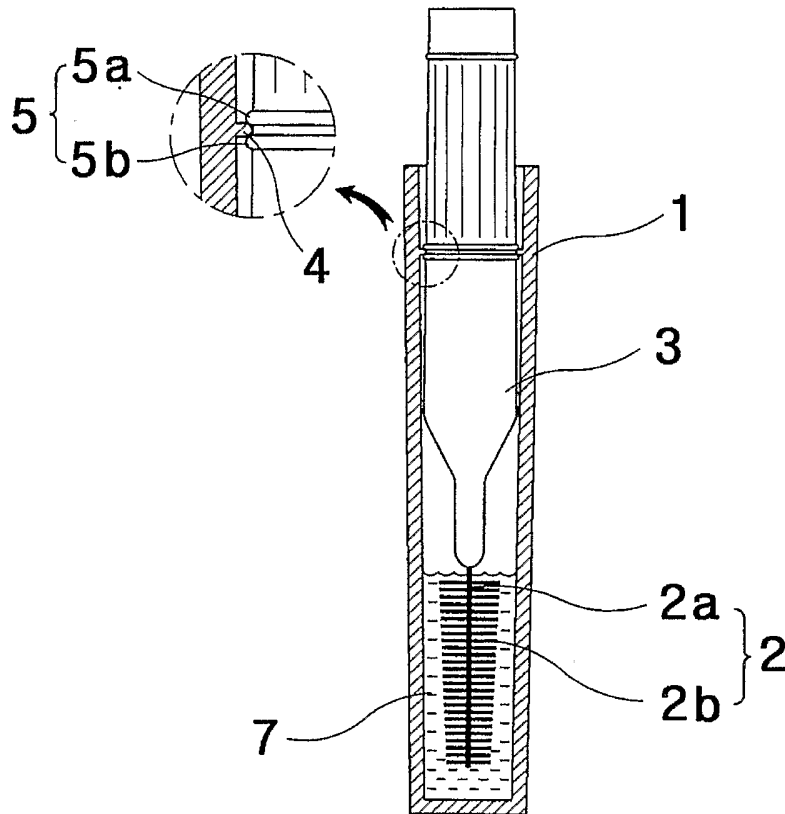
15 a casing including two hollow reception parts, said reception parts having a
triangular cross-section for receiving said brush units, respectively, and each having a
locking groove on an inner circumferential surface thereof at a position adjacent to a
mouth thereof, said locking groove engaging with the locking projection for holding
the brush unit, said reception parts also containing gargle and disinfectant therein,
respectively.

【도면】

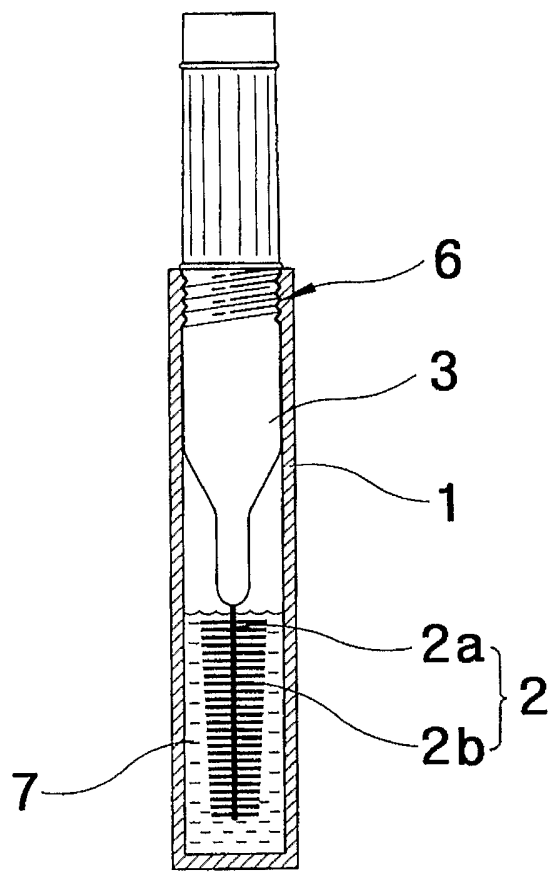
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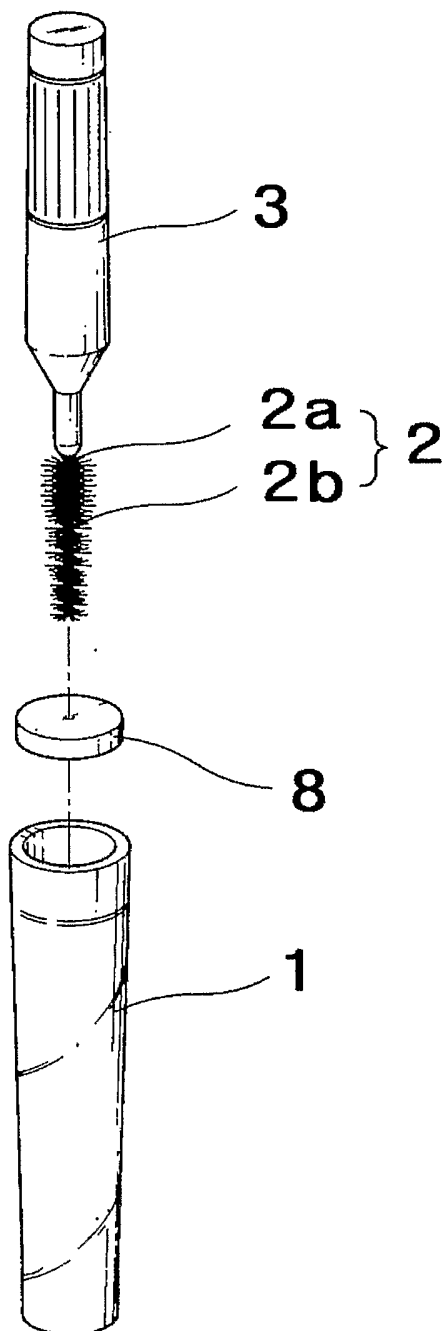
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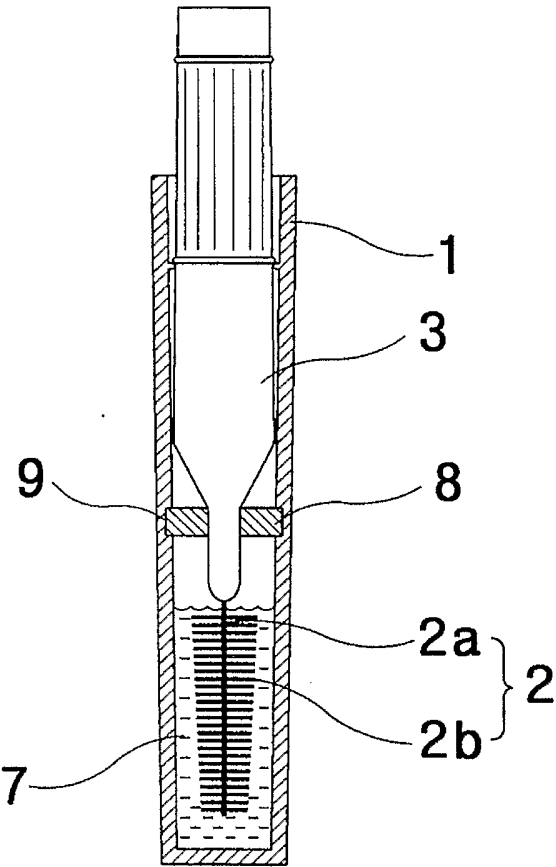
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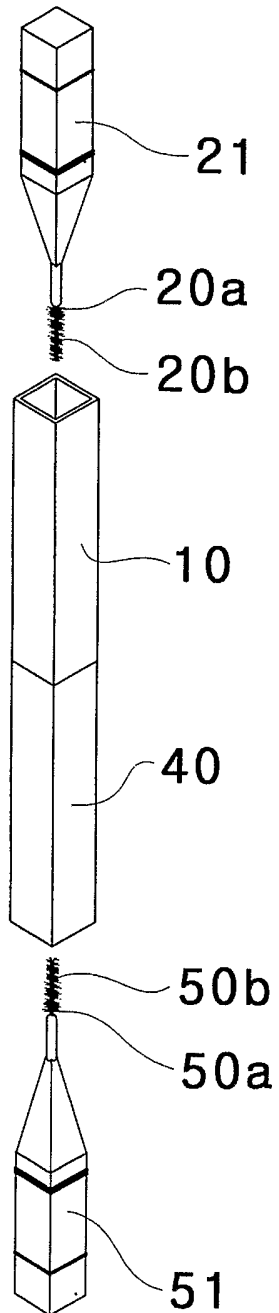
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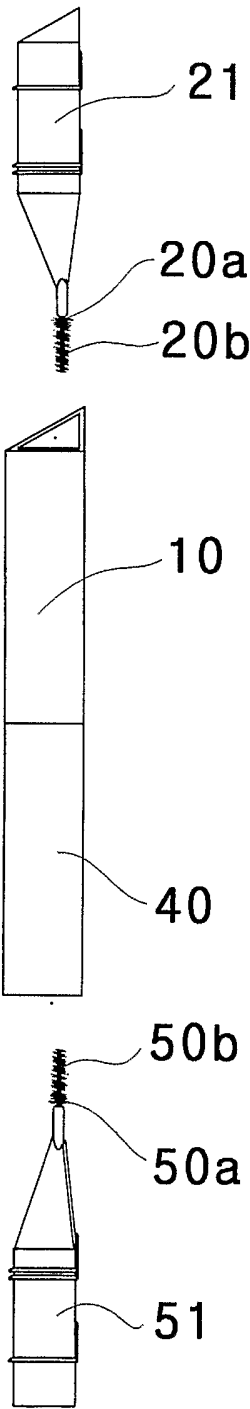
【도 5】



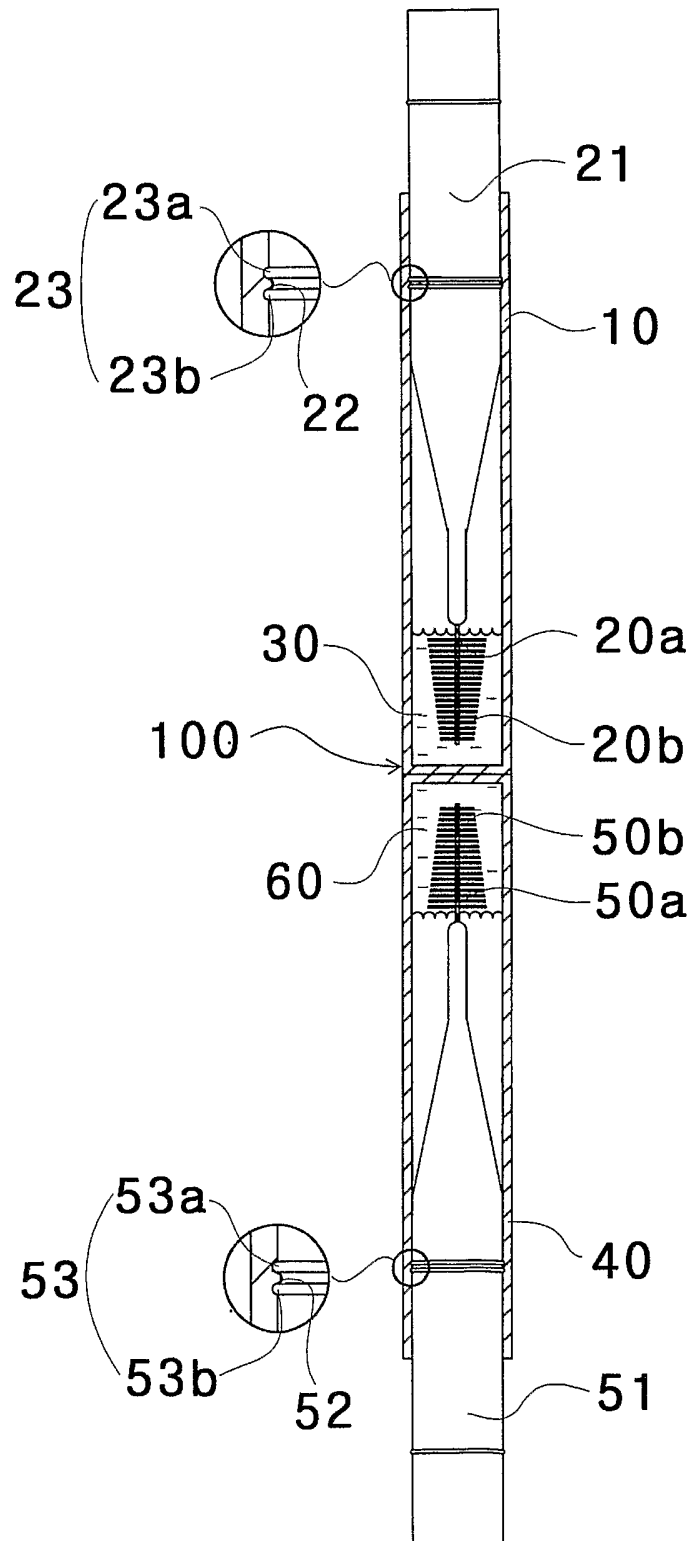
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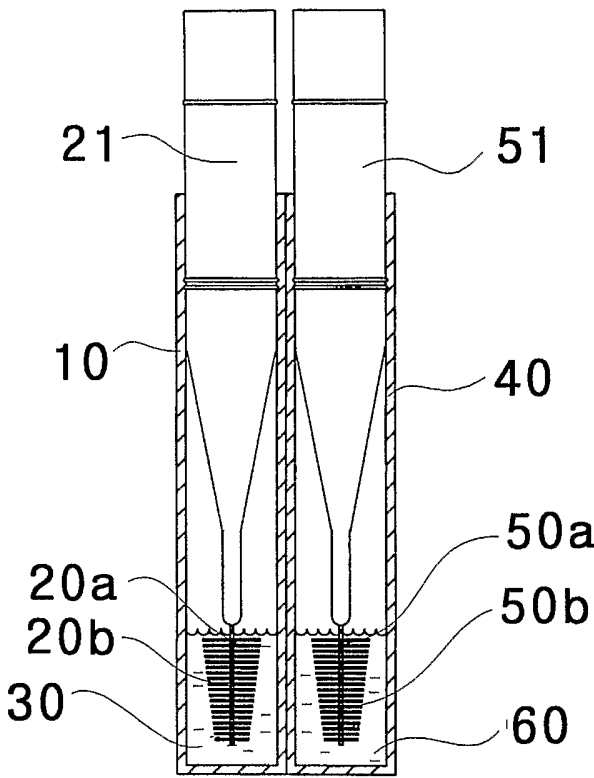
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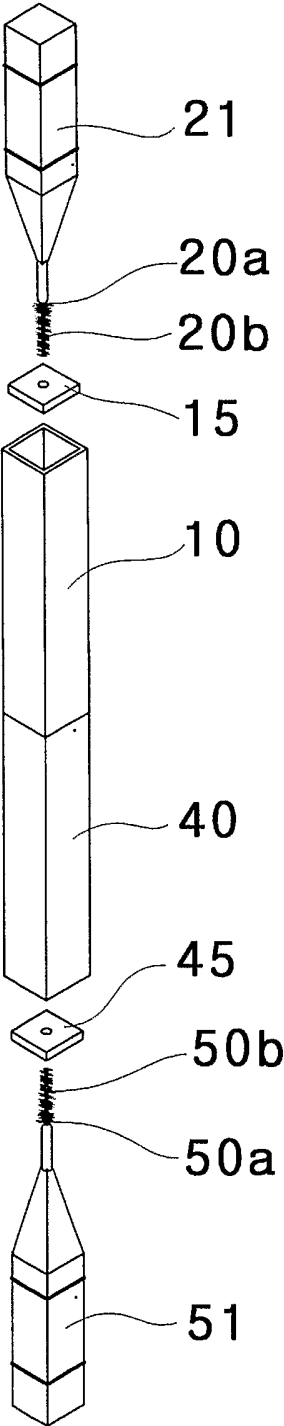
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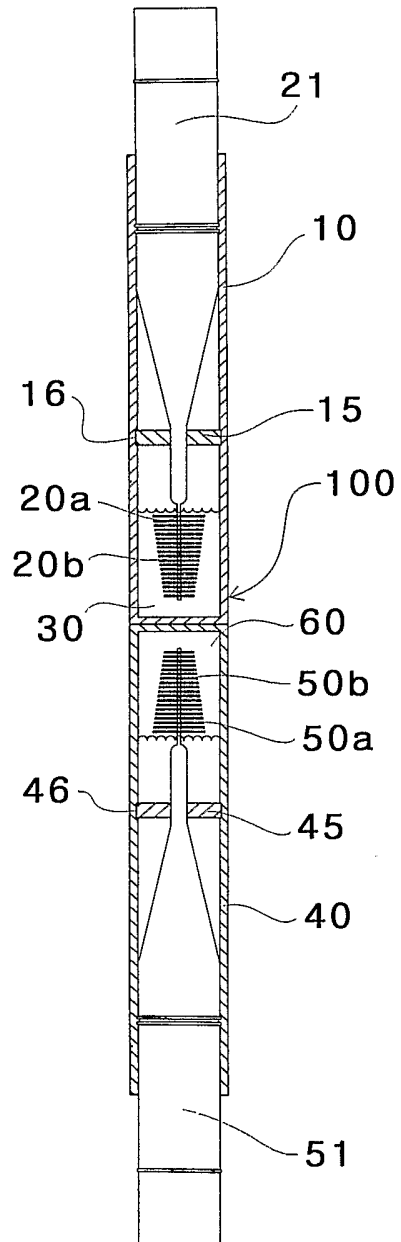
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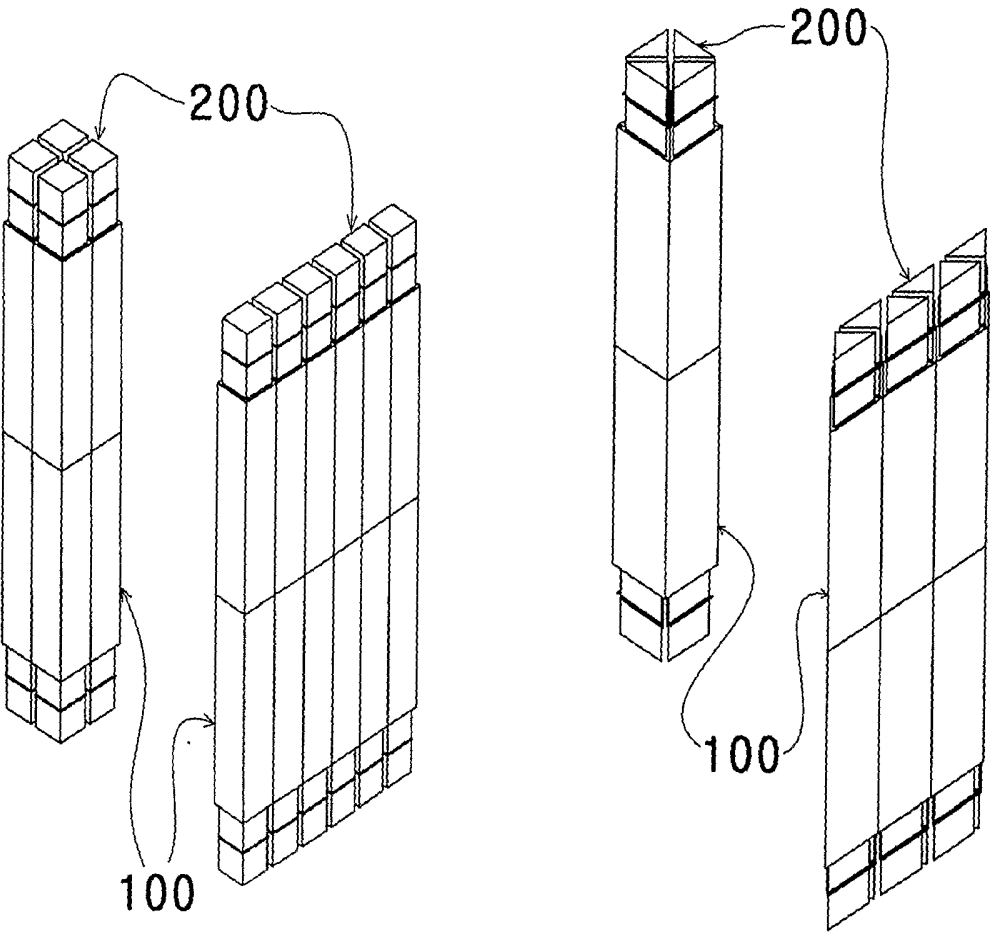
【도 10】



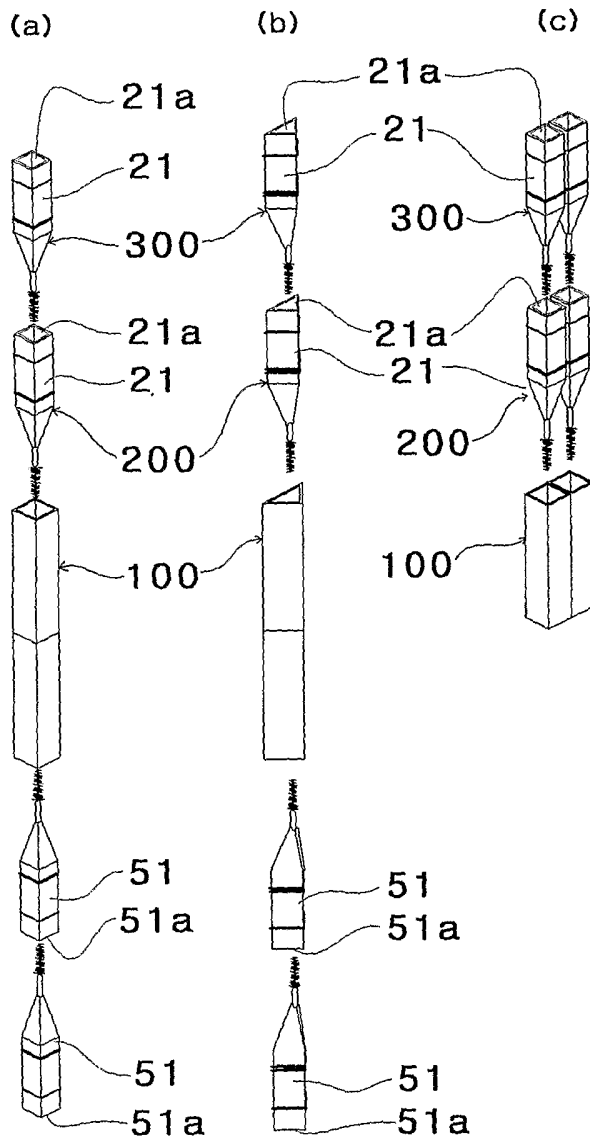
【도 11】



【도 12】



【도 13】



【도 14】

