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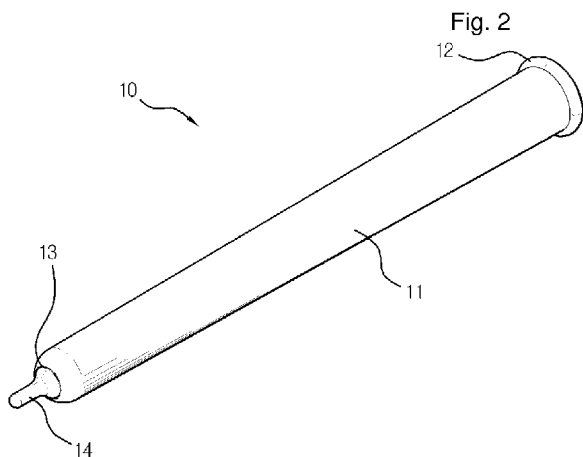
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(54) Title: INFECTION PREVENT GOODS OF DENTAL INSTRUMENT



(57) Abstract: An infection preventing device for a dental instrument is disclosed, which is capable of preventing impurities or germs from a patient from infecting other patients through the dental instrument during medical examination or treatment. The infection preventing device according to the present invention is capable of being conveniently mounted to a dental instrument, especially at a correct position of the dental instrument, and being applied to various types of dental instruments. The infection preventing device comprises a receiving part formed as a hollow pipe, and a close-contacting ring formed at one end of the receiving part to closely contact an outer circumferential surface of the dental instrument by elasticity, and further comprising a protrusion part disposed at a leading end of the receiving part, being integrally formed with the receiving part and a cut groove formed along a border between the receiving part and the protrusion part. A portion of the receiving part around the cut groove is formed to be thicker than the other portion of the receiving part. A jet nozzle is further formed adjacent to the cut groove of the receiving part to jet fluid such as air and water therethrough. The infection preventing device further comprises skidproof ribs formed along an outer circumference at one side of the receiving part. Accordingly, the infection preventing device can be mounted promptly and easily to a correct position of the dental instrument, thereby improving convenience in use, while preventing infection of the dental instrument.

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Description

INFECTION PREVENT GOODS OF DENTAL INSTRUMENT

Technical Field

[1] The present invention relates to an infection preventing device for a dental instrument, and more particularly to an infection preventing device for a dental instrument, capable of preventing impurities or germs from a patient from infecting other patients through the dental instrument during dental examination or treatment.

[2]

Background Art

[3] As generally known, dental instruments are infected by impurities or germs from a patient during dental examination or treatment and therefore should go through sterilization for a long time after use. Therefore, a lot of spare dental instruments are required to be prepared for continuous use even during the long-time sterilization. Also, lifespan of the dental instruments may be reduced by such a long-time exposure to heat for sterilizing.

[4] Accordingly, an infection preventing device for preventing direct contact between the dental instrument and the impurities or germs has been introduced by the present applicant, as disclosed in KR Patent No. 10-0602412 (titled: Infection Preventing Device for Hand-piece). Fig. 1 shows the disclosed conventional infection preventing device.

[5] Referring to Fig. 1, the infection preventing device 100 comprises a receiving part 101 having a pipe form, and a close-contacting ring 102 formed at one end of the receiving part 101. The close-contacting ring 102 closely contacts an outer circumferential surface of a main body 106 of a dental instrument 105 by elasticity. In addition, a communication part 103 is formed at the other end of the receiving part 101 to insert therein a head part 107 of the dental instrument 105. A penetration hole 104 is formed at an end of the communication part 103 so that a tip 108 of the dental instrument 105 can protrude through the penetration hole 104.

[6] By covering the dental instrument 105 with the above-structured infection preventing device 100, impurities or germs generated from a patient can be prevented from direct contact with the dental instrument 105 while allowed to contact only a surface of the infection preventing device 100.

[7] Therefore, hygienic use of the dental instrument 105 can be guaranteed by removing a waste infection preventing device 100 from the dental instrument 105 after the examination or treatment and substituting a new infection preventing device 100. Furthermore, it is unnecessary to prepare lots of dental instruments 105 for spare use.

[8] However, the disclosed infection preventing device 100 cannot be applied to other types of dental instruments since being restricted in use to a hand-piece of the dental instrument 105. Also, even when applied to the hand-piece, it is extremely hard to slide the dental instrument 105 into a proper position of the infection preventing device 100 because the infection preventing device 100 is made of a skidproof material for close contact with the dental instrument 105.

[9] When the infection preventing device 100 is mounted to the dental instrument 105, especially, the tip 108 of the dental instrument 105 needs to be positioned correctly at the center of the penetration hole 104 so that the penetration hole 104 is completely brought into close contact with the head part 107 to thereby prevent infection of the dental instrument 105. However, if the infection preventing device 100 is not mounted at the correct position due to the material characteristic of the infection preventing device 100, the infection preventing effect would be deteriorated.

[10]

Disclosure of Invention

Technical Problem

[11] Therefore, the present invention has been made in view of the above problems, and it is an object of the present invention to provide an infection preventing device capable of being conveniently mounted to a dental instrument, especially at a correct position of the dental instrument, and capable of being applied to various types of dental instruments.

[12]

Technical Solution

[13] In accordance with an aspect of the present invention, the above and other objects can be accomplished by the provision of an infection preventing device comprising a receiving part formed as a hollow pipe, and a close-contacting ring formed at one end of the receiving part to closely contact an outer circumferential surface of the dental instrument by elasticity, and further comprising a protrusion part disposed at a leading end of the receiving part, being integrally formed with the receiving part and a cut groove formed along a border between the receiving part and the protrusion part.

[14] A portion of the receiving part around the cut groove may be formed to be thicker than the other portion of the receiving part. Additionally, a jet nozzle may be further formed adjacent to the cut groove of the receiving part to jet fluid such as air and water therethrough.

[15] The infection preventing device may further comprise skidproof ribs formed along an outer circumference at one side of the receiving part.

[16] Accordingly, the infection preventing device can be mounted promptly and easily to

a correct position of the dental instrument, thereby improving convenience in use, while preventing infection of the dental instrument.

[17]

Advantageous Effects

[18]

As can be appreciated from the above description, the infection preventing device according to the embodiments of the present invention is applicable to various dental instruments regardless of the type and shape. In addition, since the infection preventing device is mounted in perfectly close contact with the dental instrument, infection of the dental instrument by impurities or germs can be prevented during dental examination and treatment.

[19]

Also, mounting of the infection preventing device can be easily performed by omitting a dedicated process for positioning the infection preventing device at a correct position. Furthermore, slip of the dental instrument from a user's hand can be prevented.

[20]

Brief Description of the Drawings

[21]

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:

[22]

Fig. 1 shows a conventional infection preventing device for a dental instrument;

[23]

Fig. 2 is a perspective view of an infection preventing device for a dental instrument according to an embodiment of the present invention;

[24]

Fig. 3 is a sectional view of the infection preventing device according to the embodiment of the present invention;

[25]

Fig. 4 through Fig. 7 are explanatory views showing mounting processes of the infection preventing device according to the embodiment of the present invention;

[26]

Fig. 8 is an explanatory view of an infection preventing device according to another embodiment of the present invention;

[27]

Fig. 9 is an explanatory view of an infection preventing device according to still another embodiment of the present invention;

[28]

Fig. 10 is an explanatory view of an infection preventing device according to still another embodiment of the present invention;

[29]

Fig. 11 is an explanatory view of an infection preventing device according to still another embodiment of the present invention;

[30]

Fig. 12 is an explanatory view of an infection preventing device according to still another embodiment of the present invention;

[31]

Fig. 13 is a view explaining a state where the infection preventing device according

to the present invention is mounted to an air syringe and

[32] Fig. 14 is a view explaining a state where the infection preventing device according to the present invention is mounted to an ultrasonic scaler.

[33]

Best Mode for Carrying Out the Invention

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

[35] Fig. 2 is a perspective view of an infection preventing device for a dental instrument according to an embodiment of the present invention, and Fig. 3 is a sectional view of the infection preventing device according to the embodiment of the present invention.

[36] The infection preventing device according to the embodiment of the present invention comprises a receiving part 11 formed as a hollow pipe, and a close-contacting ring 12 formed at one end of the receiving part 11 to closely contact an outer circumferential surface of a dental instrument 18 by elasticity of the material thereof. A protrusion part 14 is disposed at a leading end of the receiving part 11, being integrally formed with the receiving part 11. A cut groove 13 is formed on inside and outside along a border between the receiving part 11 and the protrusion part 14.

[37] The protrusion part 14 is wide at a side adjoining the receiving part 11 and narrow at the other side. The receiving part 11 has a straight form, being made of an elastic material such as silicon or rubber.

[38] A reference numeral 10 refers to the infection preventing device according to the embodiment of the present invention.

[39] In Fig. 4 through Fig. 7, mounting processes of the above-structured infection preventing device 10 to the dental instrument 18 are illustrated. Here, a hand piece 19 is taken as an example of the dental instrument 18.

[40] First, the receiving part 11 of the infection preventing device 10 is rolled up from the close-contacting ring 12 as shown in Fig. 4. More particularly, the receiving part 11 is rolled inside out almost to the protrusion part 14. Then, an inside of the protrusion part 14 is corresponded to a position for mounting of a tip 22 of a head part 21 of the hand piece 19 in close contact with the position.

[41] In this state, the infection preventing device 10 is rolled out along the shape of the hand piece 19, thereby restoring the initial form. As shown in Fig. 5 and Fig. 6, more particularly, as the receiving part 11 is rolled out along the hand piece 19 from the position for mounting the tip 22 of the head part 21 and throughout the whole head part 21 and a main body 20, the infection preventing device 10 is completely mounted on the hand piece 19, that is, on the dental instrument 18.

[42] As a result, due to characteristic of the material of the infection preventing device

10, the infection preventing device 10 can be brought into close contact with the dental instrument 18. Since a closer contact of the leading end of the receiving part 11 is achieved by the close-contacting ring 12, external impurities or germs can be perfectly prevented from infiltrating under the infection preventing device 10 and infecting the dental instrument 18.

[43] Additionally, after mounting of the infection preventing device 10 is completed, when a user pulls out the protrusion part 14 by hand, the protrusion part 14 can be separated from the receiving part 11 with respect to the cut groove 13. Here, a portion of the receiving part 11 around the cut groove 13 is also pulled as the protrusion part 14 is being pulled out, and then restored to the initial position by elasticity upon separation of the protrusion part 14. At this time, a hole thus formed at the receiving part 11 is positioned exactly at the center of a mounting surface of the head part 21 where the tip 22 is to be mounted.

[44] That is, the center of the hole formed at the receiving part 11 by separation of the protrusion part 14 is exactly corresponded to a mounting position of the tip 22 such that the tip 22 can be connected to the head part 21 through the hole.

[45] As described above, the infection preventing device 10 according to the embodiment of the present invention can be conveniently mounted through processes of rolling up, rolling out along the dental instrument 18, and separating the protrusion part 14 therefrom. Furthermore, a dedicated process for positioning the infection preventing device 10 is not required.

[46] Although the infection preventing device 10 merely has a pipe form or bag form, the elastic and flexible material of the infection preventing device 10 enables a perfect contact of the infection preventing device 10 with every part of the dental instrument 18, thereby improving the infection preventing effect.

[47] After use, the infection preventing device 10 can be removed in the reverse order of the mounting processes.

[48] Fig. 8 shows another embodiment of the infection preventing device 10 according to the present invention. A distinctive feature of this embodiment is a hollow part 15 formed inside the protrusion part 14 and opened to an upper part.

[49] The hollow part 15 not only saves the material of the infection preventing device 10 during the manufacture, but also improves user's gripping contact with the protrusion part 14 by supplying a buffering space when the user grips and pulls out the protrusion part 14.

[50] Fig. 9 to Fig. 12 show still other embodiments of the infection preventing device 10 according to the present invention. In Fig. 9, the portion of the receiving part 11 around the cut groove 13 is thicker than the other portions of the receiving part 11.

[51] Therefore, since an edge of the hole formed at the receiving part 11 around the cut

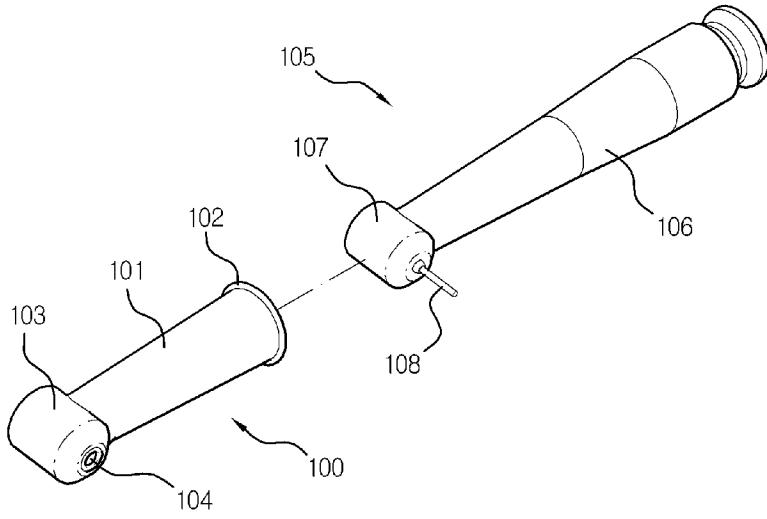
groove 13 is reinforced, when the protrusion part 14 is removed, the infection preventing device 10 can be more closely mounted to the dental instrument 18. Moreover, although the protrusion part 14 is pulled by an excessive physical force, the portion around the cut groove 13 is not easily torn or damaged.

- [52] Referring to Fig. 10, a jet nozzle 16 is formed adjacent to the cut groove 13 to jet fluid such as air and water therethrough. This is to facilitate jetting of the fluid during the dental examination or treatment such as tooth preparation and dental polishing.
- [53] A portion around the jet nozzle 16 may be formed to have a greater thickness than the other portion so as not to be easily torn or damaged by an external force or a jetting pressure.
- [54] Referring to Fig. 11, the receiving part 11 has a gently curved shape.
- [55] Since the main body 20 of the dental instrument 18 is bent or curved in general, the curved receiving part 11 would be more easily mounted and more strongly fixed to the dental instrument 18.
- [56] Fig. 12 shows the receiving part 11 including skidproof ribs 17 formed along an outer circumference at one side thereof. During the examination or treatment performed with the infection preventing device 10 mounted to the dental instrument 18, the skidproof ribs 17 prevents the dental instrument 18 from slipping out of the user's hand, for example, due to sweat.
- [57] In Fig. 13 and Fig. 14, the infection preventing device 10 is applied to other types of the dental instrument 18, not the hand piece 19. More specifically, Fig. 13 shows a mounting process of the infection preventing device 10 to an air syringe 23, and Fig. 14 shows a mounting process of the infection preventing device 10 to an ultrasonic scaler 24.
- [58] As illustrated in the drawings, the infection preventing device 10 according to the embodiments of the present invention can be conveniently applied to various dental instruments 18 including the air syringe 23 and the ultrasonic scaler 24 used for plaque removal and gums treatment as well as the hand piece 19 used for tooth preparation and dental polishing.
- [59] 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.

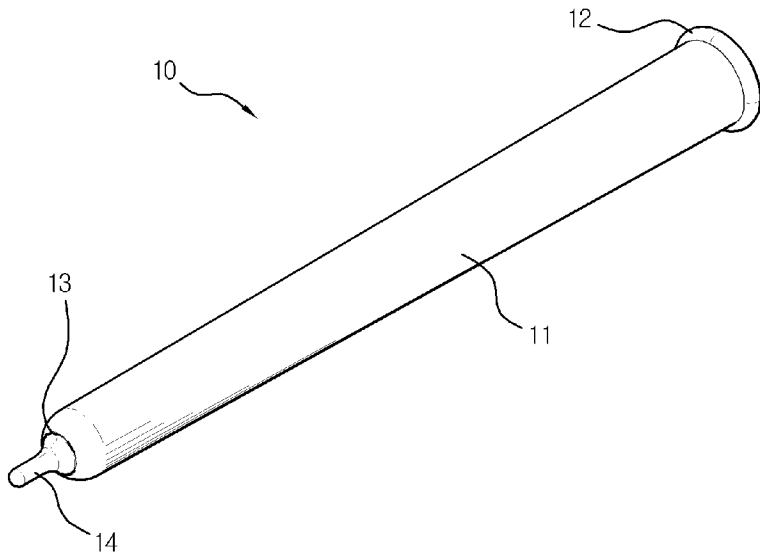
Claims

- [1] An infection preventing device for a dental instrument, comprising a receiving part formed as a hollow pipe, and a close-contacting ring formed at one end of the receiving part to closely contact an outer circumferential surface of the dental instrument by elasticity, and further comprising:
a protrusion part disposed at a leading end of the receiving part, being integrally formed with the receiving part and
a cut groove formed along a border between the receiving part and the protrusion part.
- [2] The infection preventing device according to claim 1, further comprising a hollow part formed inside the protrusion part and opened upward.
- [3] The infection preventing device according to claim 1, wherein a portion of the receiving part around the cut groove is formed to be thicker than the other portion of the receiving part.
- [4] The infection preventing device according to claim 1, further comprising a jet nozzle formed adjacent to the cut groove of the receiving part to jet fluid such as air and water therethrough.
- [5] The infection preventing device according to claim 4, wherein a portion of the receiving part around the jet nozzle is formed to be thicker than the other portion.
- [6] The infection preventing device according to claim 1, wherein the receiving part has a straight form.
- [7] The infection preventing device according to claim 1, wherein the receiving part has a gently curved form.
- [8] The infection preventing device according to claim 1, further comprising skidproof ribs formed along an outer circumference at one side of the receiving part.
- [9] The infection preventing device according to claim 1, wherein the dental instrument is a hand piece.
- [10] The infection preventing device according to claim 1, wherein the dental instrument is an air syringe.
- [11] The infection preventing device according to claim 1, wherein the dental instrument is an ultrasonic scaler.

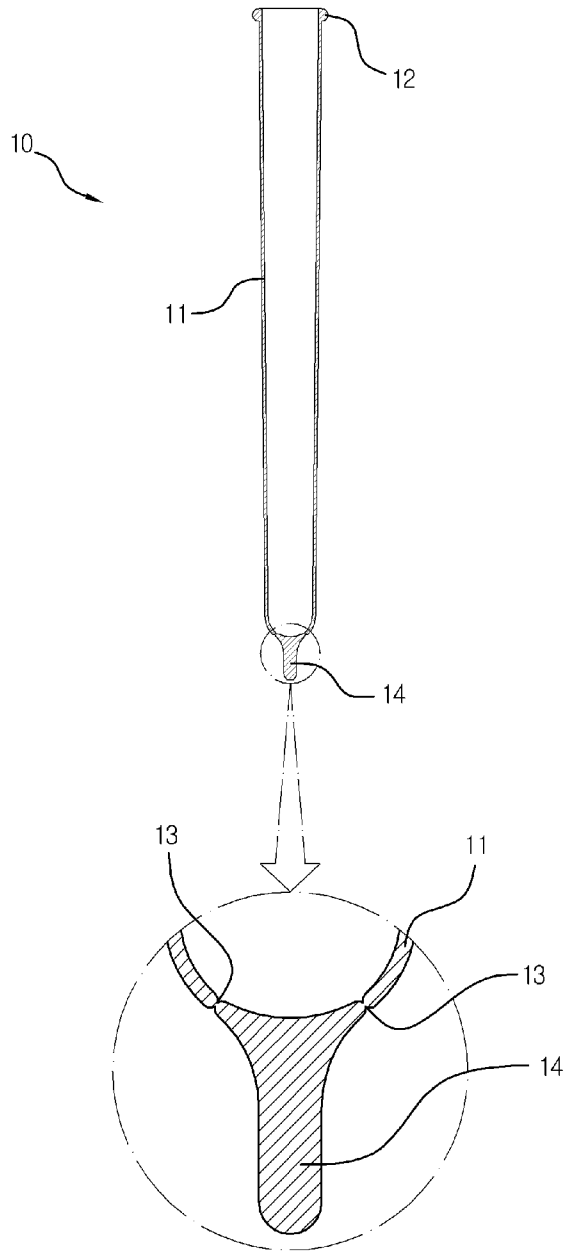
[Fig. 1]



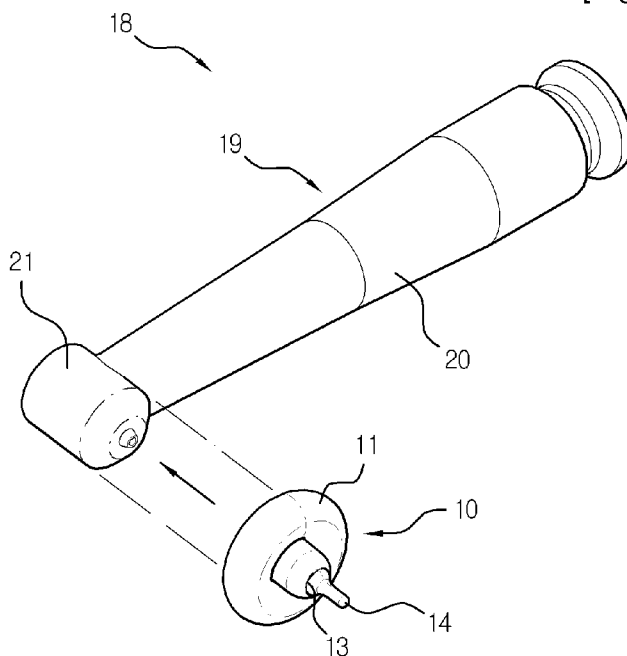
[Fig. 2]



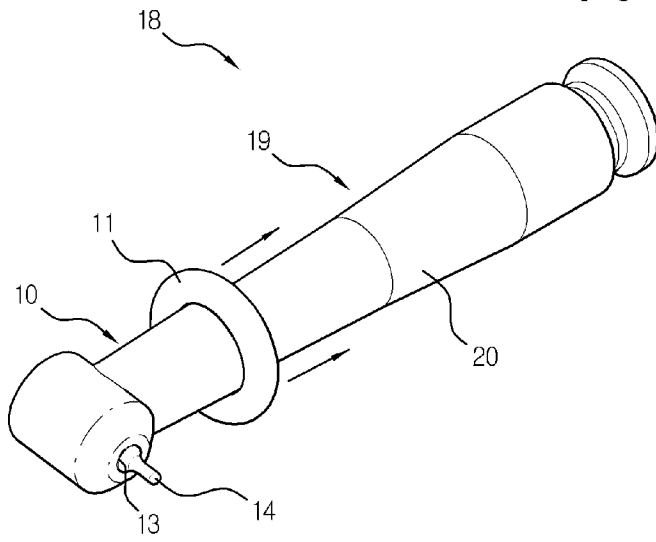
[Fig. 3]



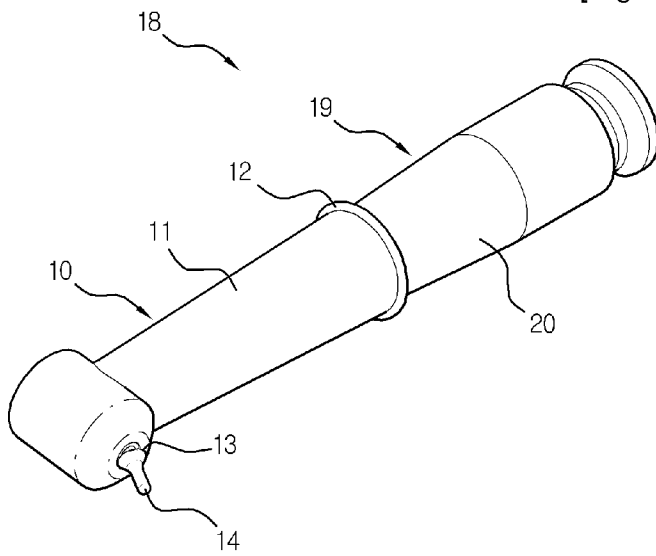
[Fig. 4]



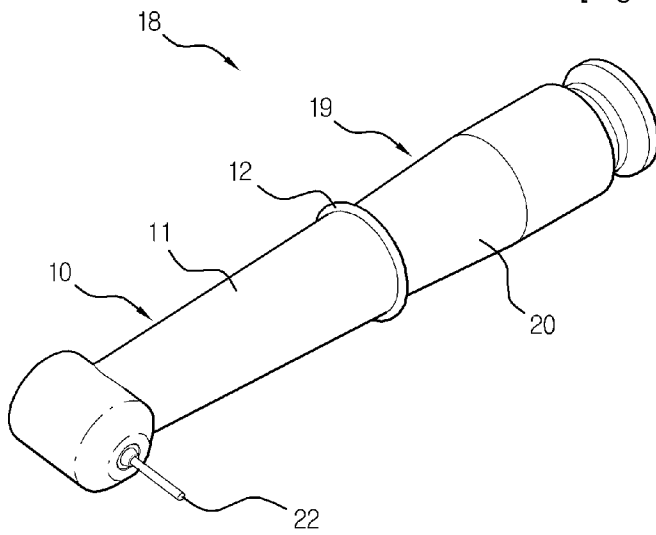
[Fig. 5]



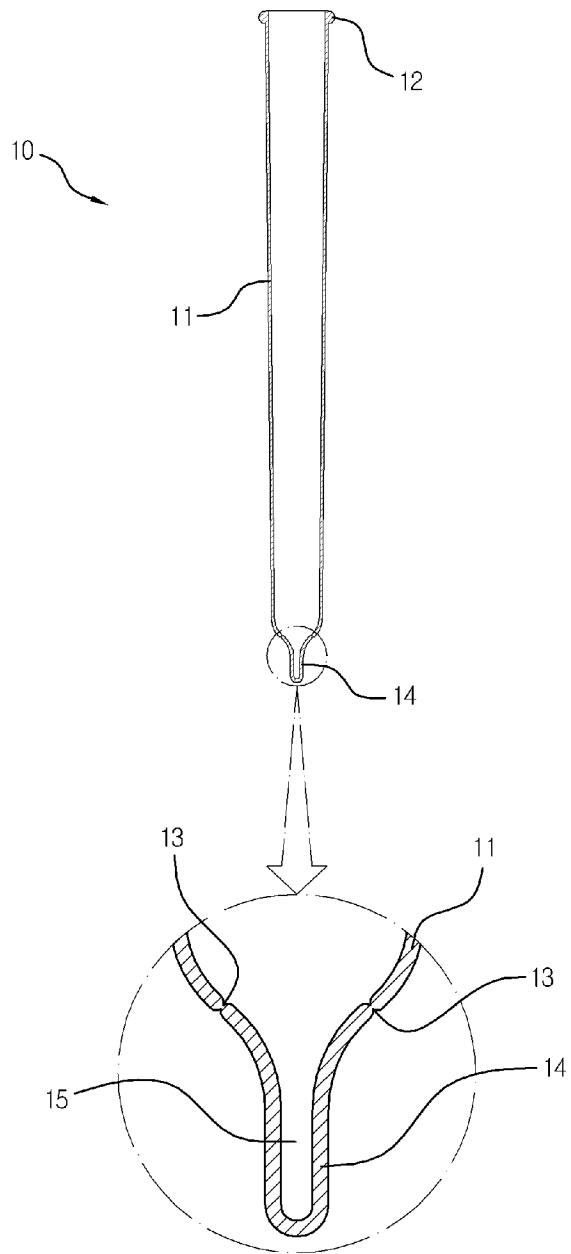
[Fig. 6]



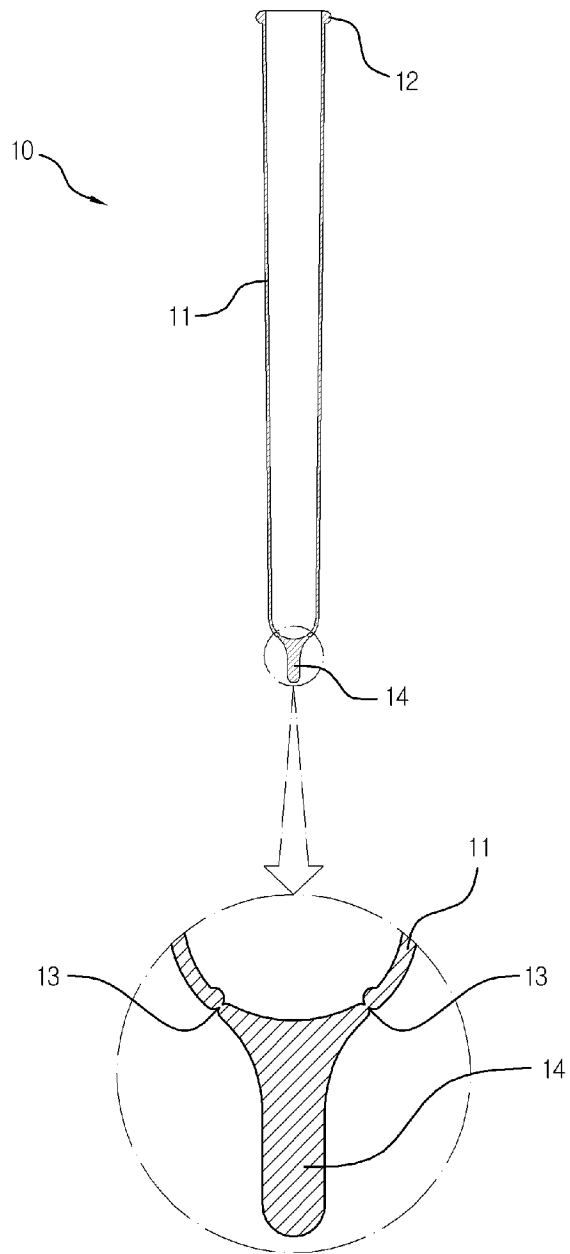
[Fig. 7]



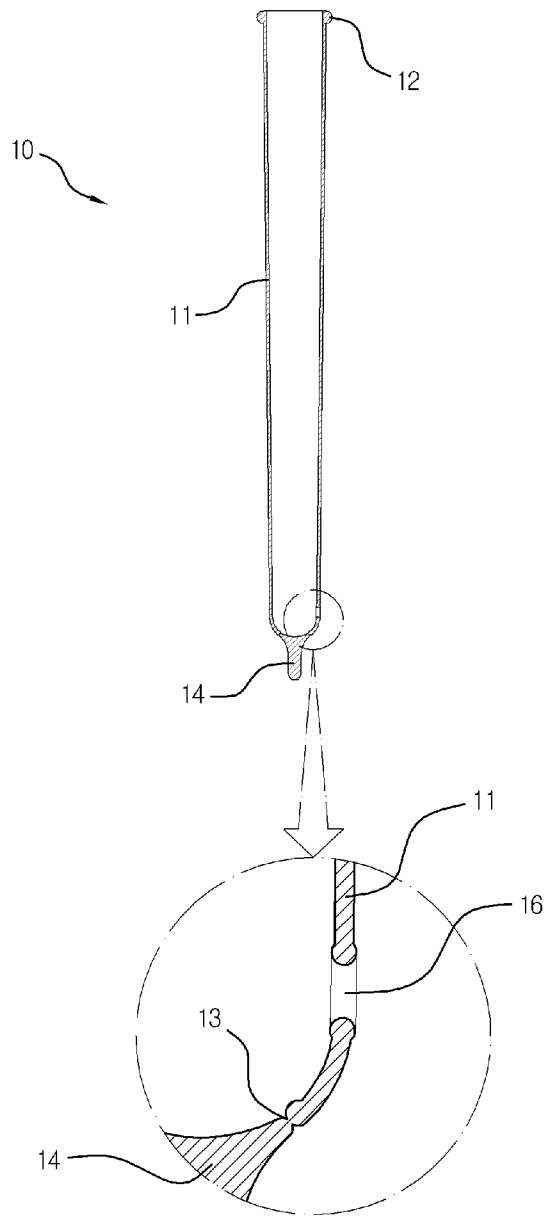
[Fig. 8]



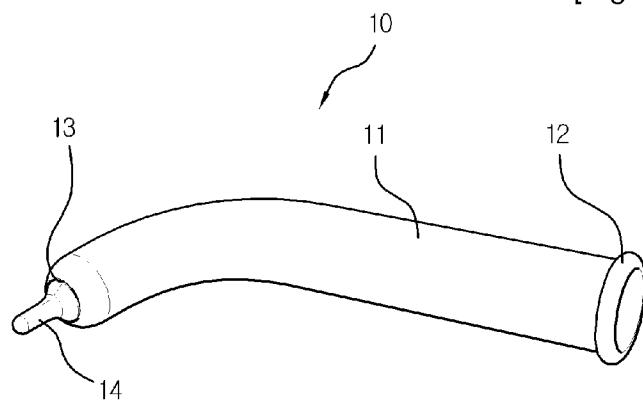
[Fig. 9]

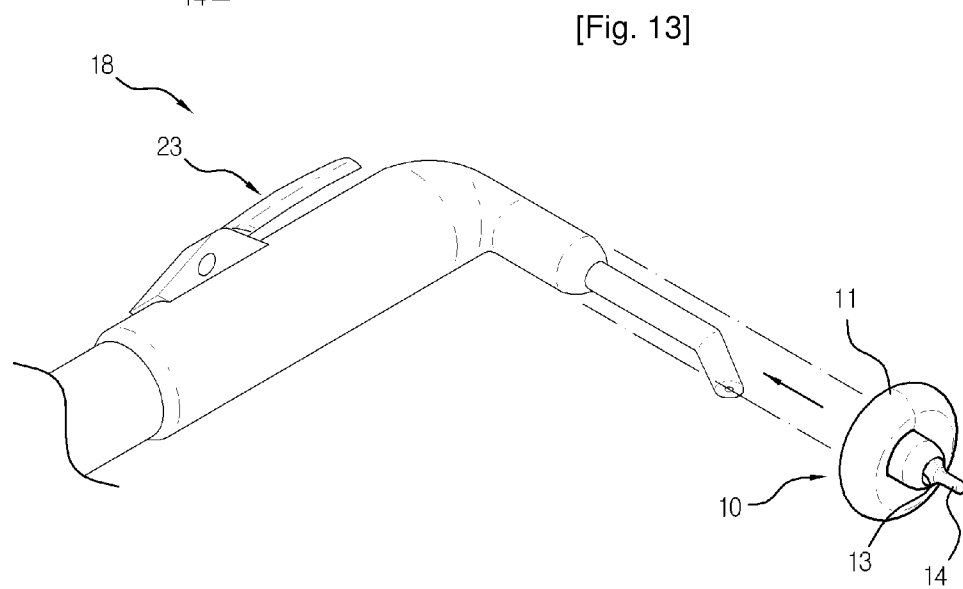
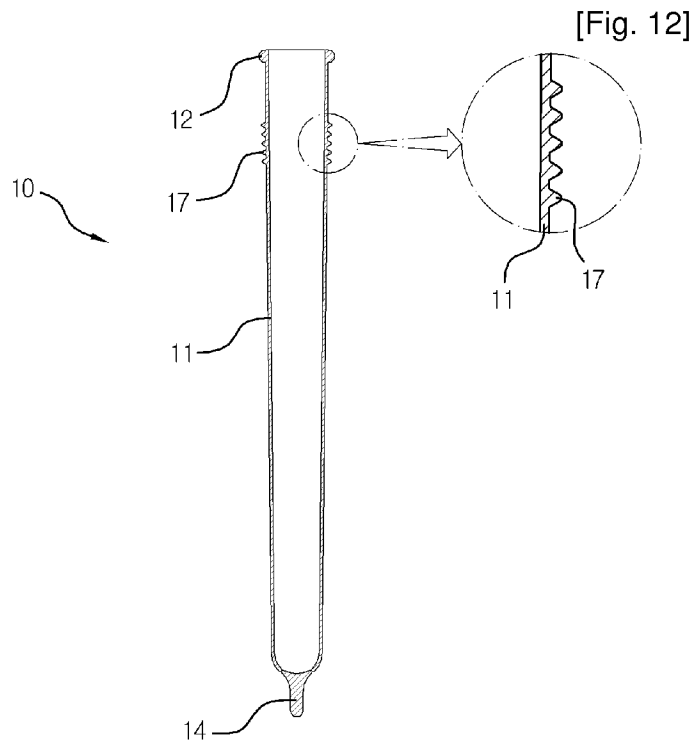


[Fig. 10]

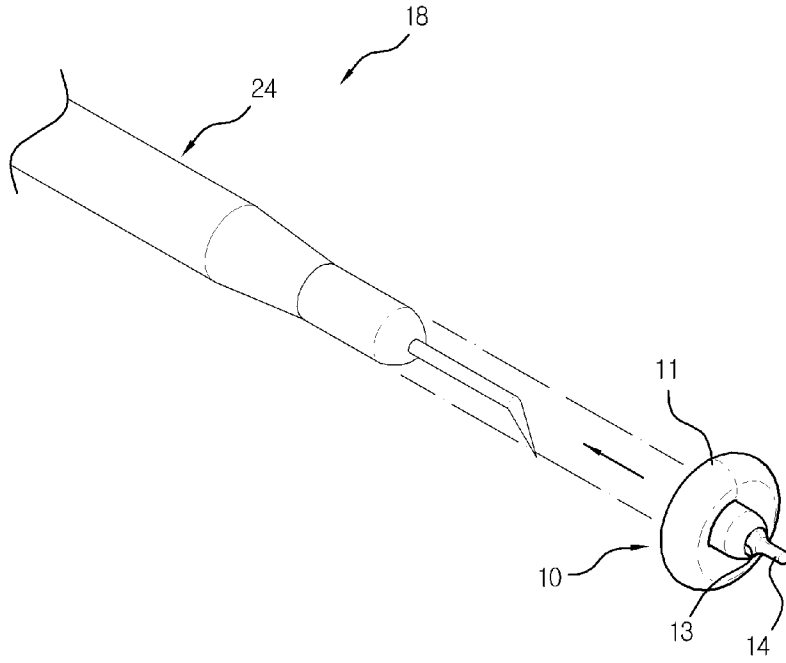


[Fig. 11]





[Fig. 14]



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2008/001190**A. CLASSIFICATION OF SUBJECT MATTER***A61C 3/00(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)

IPC 8 : A61C 3/00, A61C 1/16

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 Applications for Utility Models since 1975Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKIPASS, WPI, USPTO, PAJ "handpiece, covering, dental instrument, protecting caps "**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4728290 A (MARK R. EISNER) 1 March 1988 (01.03.1988) See the abstract, Figs. 1-12, col. 3, line 38-col.4, line 26, claims	1-11
A	US 4286950 A (GENE R. HAWK) 1 September 1981 (01.09.1981) See the abstract, Figs. 1-5, claims	1-11
A	US 5292250 A (EUGENE G. SHERBURNE) 8 March 1994 (08.03.1994) See the abstract, Fig.1, col. 2, line 52-col.3, line 24	1-11
A	US 5267860 A (WILLIAM L. INGRAM, JR ET.AL.) 7 December 1993 (07.12.1993) See the abstract, Figs. 1-2, claims	1-11
A	KR 1020050081856 A (KIM KI SUK) 19 August 2005 (19.08.2005) See the abstract, Figs. 1a-5b	1-11

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US5267860A	07.12.1993	NONE	
KR1020050081856A	19.08.2005	NONE	