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(54) **TOOTHBRUSH STRUCTURE**

(57) An improved toothbrush structure includes a handle with a toothbrush head disposed at an upper end of the handle. A groove is formed on a side of the toothbrush head and the groove is provided with a cleaning device, and a glue for fixing and adhering the groove of the toothbrush head and the cleaning device with each other, and the cleaning device includes but not limited to a sponge cleaning device, a non-woven fiber cleaning device, a nylon fiber cleaning device, a plant fiber cleaning device, a functional fabric cleaning device or a plastic cleaning device. The cleaning device has an end surface in a shape including but not limited to a flat shape or a wavy shape.

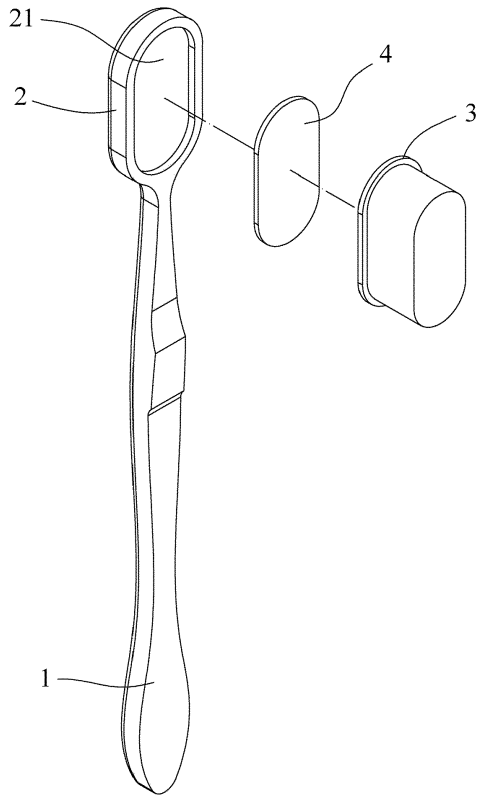

FIG.1

EP 4 265 150 A1

Description

BACKGROUND

Technical Field

[0001] The present disclosure relates to an improved structure, and more particularly relates to a toothbrush structure with improved bristles of a toothbrush.

Description of Related Art

[0002] In general, bundles of nylon thread-like bristle structures of a traditional toothbrush are attached to a brush head at the upper end of the toothbrush and provided for cleaning teeth in oral cavity. Although the nylon-thread bristles of the traditional toothbrush head usually come with a soft bristle structure and a hard bristle structure, the nylon thread-like bristle structures are neither suitable for children's oral cavity, nor suitable for people with sensitive and fragile oral cavity. The traditional toothbrush cannot meet the requirements of comfort and softness in use and has difficulties in cleaning the dirt on tooth enamel. Therefore, the function of the traditional toothbrush is greatly limited, which greatly reduces its practicality, and this problem is what those skilled in the art and consumers are eager to break through.

SUMMARY

[0003] In view of the aforementioned deficiencies of the related art, it is a primary objective of the present disclosure to overcome the deficiencies of the related art by providing an improved toothbrush structure. The improved toothbrush structure includes a toothbrush head disposed at an upper end of a handle, and the toothbrush head has a cleaning device including but not limited to a sponge cleaning device, a non-woven fiber cleaning device, a nylon fiber cleaning device, a plant fiber cleaning device, a functional fabric cleaning device or a plastic cleaning device.

[0004] A secondary objective of this disclosure is to provide an improved toothbrush structure which uses a cleaning device including but not limited to a sponge cleaning device, a non-woven fiber cleaning device, a nylon fiber cleaning device, a plant fiber cleaning device, a functional fabric cleaning device or a plastic cleaning device to provide softness and comfort for the use of the toothbrush, and facilitate users to clean the dirt of the tooth enamel. The toothbrush structure of this disclosure is suitable for the use by children and people with sensitive oral cavity.

[0005] A third objective of this disclosure is to provide an improved toothbrush structure that effectively enhances its use and provides more options and functions to users.

[0006] The problem to be solved by this disclosure is to overcome the deficiencies of the traditional toothbrush, wherein the toothbrush head on the upper end of the traditional toothbrush is tied with bundles of nylon-thread bristle structures (regardless of the soft bristle structures or the hard bristle structures), the nylon-thread bristle structures are neither suitable for children's oral cavity, nor suitable for people with sensitive oral cavity, and such traditional toothbrush fails to meet the requirements of comfort and softness in use and has difficulties to clean the dirt of tooth enamel, and the function of the toothbrush is limited which greatly reduces its practicality.

[0007] To achieve the aforementioned and other objective, this disclosure provides an improved toothbrush structure including a handle, and a toothbrush head disposed at an upper end of the handle, characterized in that a groove is formed on a side of the toothbrush head, the groove includes a cleaning device, a glue is provided for fixing and adhering the groove of the toothbrush head and the cleaning device with each other, and the cleaning device includes but not limited to a sponge cleaning device, a non-woven fiber cleaning device, a nylon fiber cleaning device, a plant fiber cleaning device, a functional fabric cleaning device or a plastic cleaning device.

[0008] In this disclosure, the cleaning device has an end surface in a shape including but not limited to a flat shape or a wavy shape.

[0009] Compared with the related art, this disclosure has the toothbrush head arranged at the upper end of the handle, and the toothbrush head includes the cleaning device including but not limited to a sponge cleaning device, a non-woven fiber cleaning device, a nylon fiber cleaning device, a plant fiber cleaning device, a functional fabric cleaning device or plastic cleaning device, and the glue is provided for fixing and adhering the toothbrush head and the cleaning device with each other, so as to achieve the effect of using the cleaning device including but not limited to the sponge cleaning device, non-woven fiber cleaning device, nylon fiber cleaning device, plant fiber cleaning device, functional fabric cleaning device or plastic cleaning device to provide a soft and comfortable use of the toothbrush and facilitate cleaning the dirt of the tooth enamel. The toothbrush structure of this disclosure is suitable for children and people with sensitive oral cavity, and has the advantages of providing more options and functions of the toothbrush to meet user requirements.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

FIG. 1 is an exploded view of this disclosure;
FIG. 2 is a perspective view of this disclosure;
FIG. 3 is a cross-sectional view of this disclosure; and
FIG. 4 is a schematic view of a cleaning device in a wavy shape in accordance with an embodiment of this disclosure.

DESCRIPTION OF THE EMBODIMENTS

[0011] This disclosure will now be described in more detail with reference to the accompanying drawings that show various embodiments of this disclosure. It is intended that the embodiments and drawings disclosed herein are to be considered illustrative rather than restrictive, and also noteworthy that the drawings are not necessary drawn according to the real proportion and precise configuration and these attached drawings should not limit the scope of the patent of this disclosure in actual implementation.

[0012] With reference to FIGS. 1 to 4 for an improved toothbrush structure in accordance with a preferred embodiment of this disclosure, the toothbrush structure includes: a handle 1 with a toothbrush head 2 disposed at an upper end of the handle 1, and the handle 1 and the toothbrush head 2 of this embodiment are formed by plastic injection molding. This disclosure is characterized in that a groove 21 is formed on a side of the toothbrush head 2, and provided with a cleaning device 3, and the cleaning device 3 of the toothbrush head 2 includes but not limited to a sponge cleaning device, a non-woven fiber cleaning device, a nylon fiber cleaning device, a plant fiber cleaning device, a functional fabric cleaning device or a plastic cleaning device. Besides the above-mentioned materials, the cleaning device 3 may also be made of other materials. A glue 4 (as shown in FIGS. 1, 2 and 3) is provided for fixing and adhering the groove 21 of the toothbrush head 2 and the cleaning device 3 with each other. Besides the combination and fixation of the groove 21 of the toothbrush head 2 and the cleaning device 3 by the glue 4, the toothbrush head 2 and the cleaning device 3 may also be combined and fixed by plastic injection molding. The end surface of the cleaning device 3 is in a shape including but not limited to a flat shape (as shown in FIGS. 1, 2 and 3) or a wavy shape (as shown in FIG. 4). In this embodiment, the cleaning device 3 is installed in the groove 21 of the toothbrush head 2 and tested by a pull test to ensure that the structure has a sufficient pulling force and will not fall off easily.

[0013] This disclosure has the following advantages:

(1) Providing users more options of the cleaning device 3.
(2) Providing more functions of the toothbrush through the cleaning device 3.
(3) Providing a soft and comfortable toothbrush.
(4) Providing an easier way of cleaning the dirt of tooth enamel.
(5) Suitable for children and people with sensitive oral cavity.
(6) Benefiting the general public.

[0014] This disclosure has the toothbrush head 2 arranged at the upper end of the handle 1, and the toothbrush head 2 has the cleaning device 3 including but not limited to the sponge cleaning device, non-woven fiber cleaning device, nylon fiber cleaning device, plant fiber cleaning device, functional fabric cleaning device or plastic cleaning device, and the glue 4 is provided for fixing and adhering the toothbrush head 2 and the cleaning device 3 with each other, so as to achieve the effects of using the cleaning device 3 including but not limited to the sponge cleaning device, non-woven fiber cleaning device, nylon fiber cleaning device, plant fiber cleaning device, functional fabric cleaning device or plastic cleaning device to provide a soft and comfortable use of the toothbrush and facilitate cleaning the dirt of tooth enamel. The toothbrush structure of this disclosure is suitable for children and people with sensitive oral cavity and has the advantages of providing more options and functions of the toothbrush to meet user requirements.

Claims

1. An improved toothbrush structure, comprising: a handle with a toothbrush head disposed at an upper end of the handle, **characterized in that** a groove is formed on a side of the toothbrush head and provided with a cleaning device, and a glue for fixing and adhering the groove of the toothbrush head and the cleaning device with each other, and the cleaning device includes but not limited to a sponge cleaning device, a non-woven fiber cleaning device, a nylon fiber cleaning device, a plant fiber cleaning device, a functional fabric cleaning device or a plastic cleaning device.

2. The improved toothbrush structure according to claim 1, wherein the cleaning device has an end surface in a shape including but not limited to a flat shape or a wavy shape.

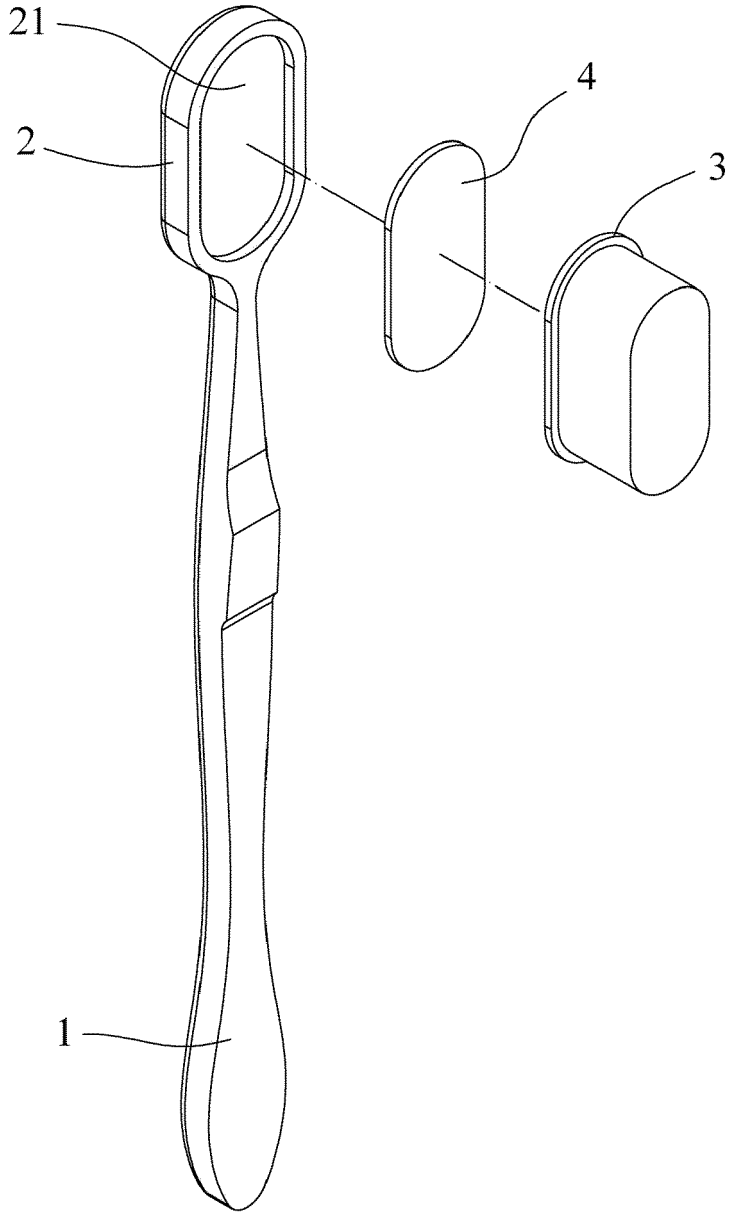

FIG.1

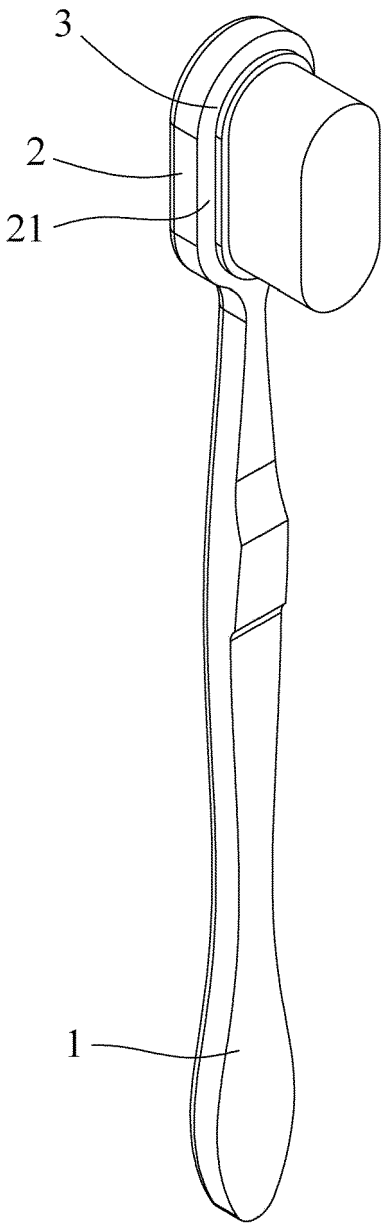

FIG.2

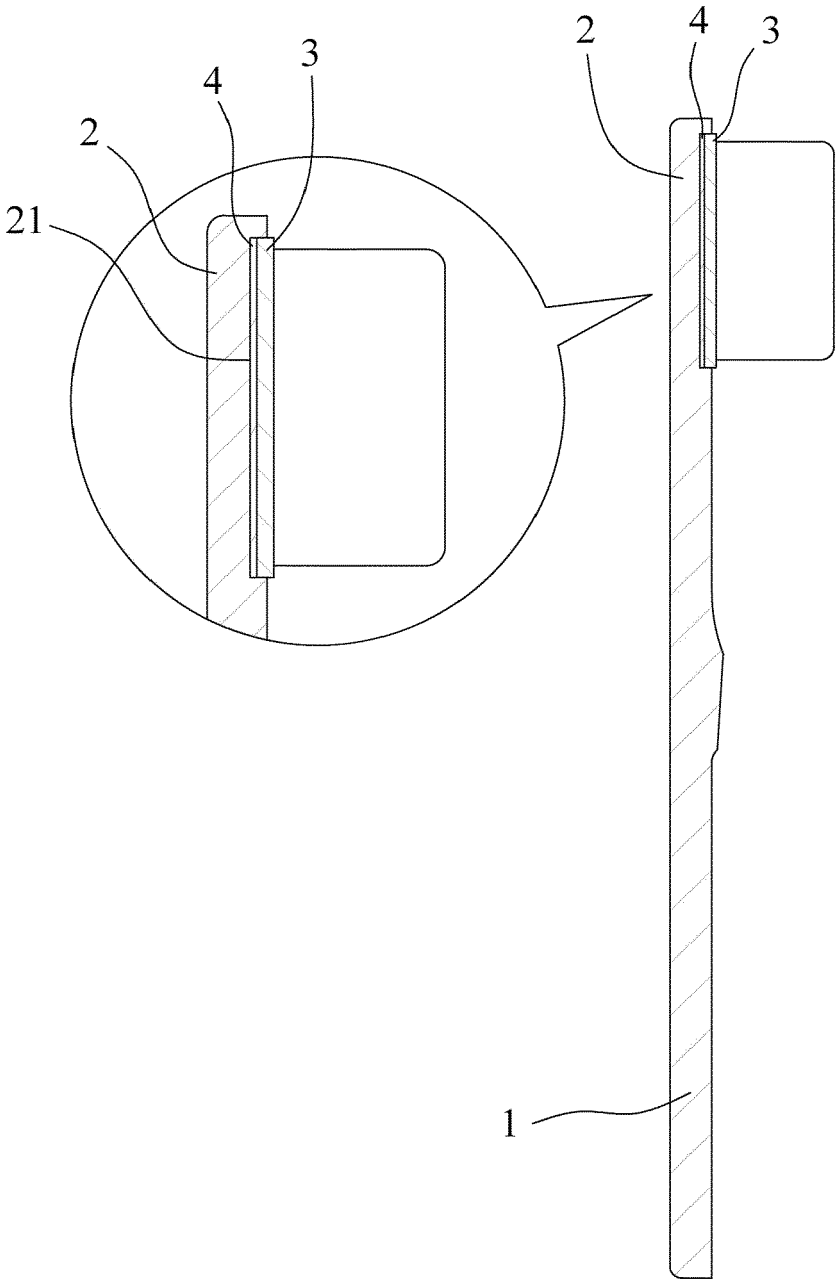

FIG.3

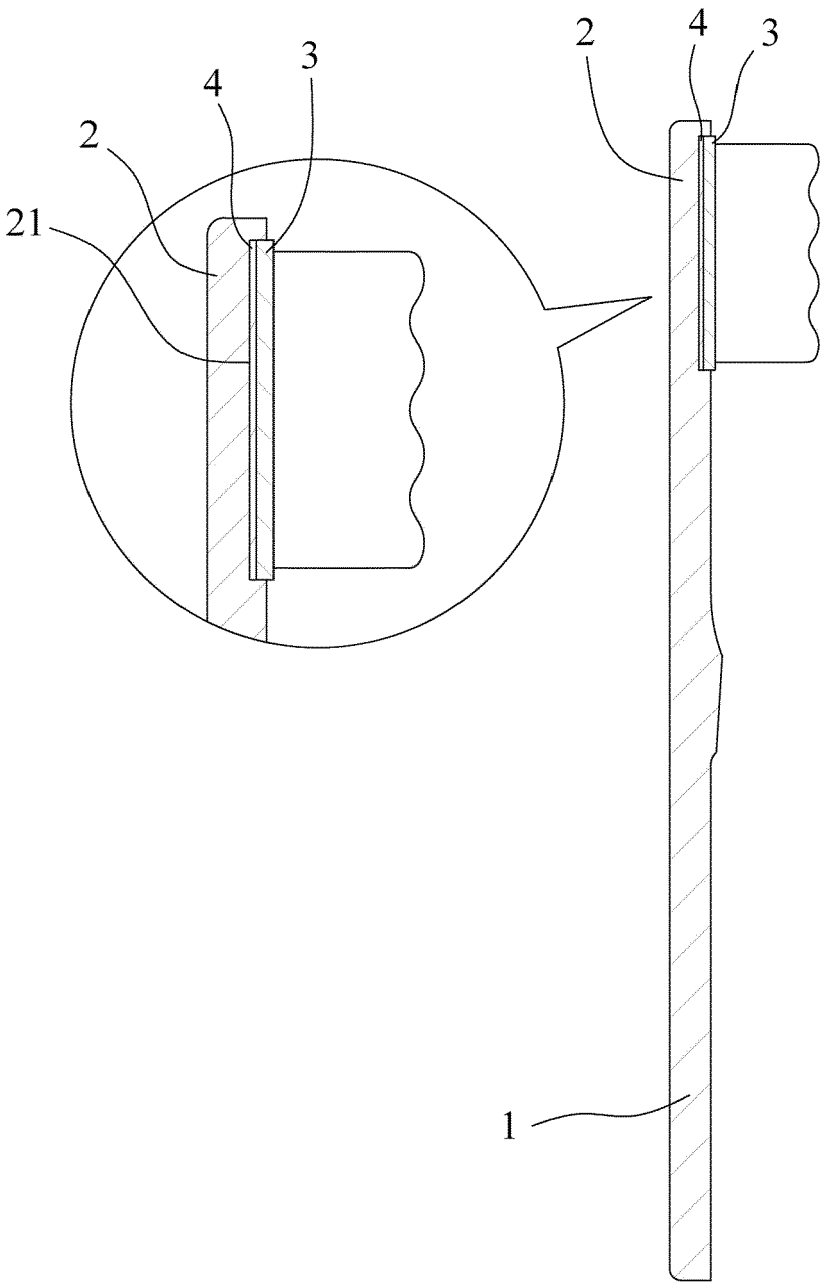

FIG.4

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EUROPEAN SEARCH REPORT

Application Number
EP 23 16 6146

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2019/200744 A1 (JIMENEZ EDUARDO [US] ET AL) 4 July 2019 (2019-07-04) * paragraph [0156]; figure 4 *	1,2	INV. A46B9/00 A46B9/04 A46B9/02
X	US 7 930 792 B2 (COLGATE PALMOLIVE CO [US]) 26 April 2011 (2011-04-26) * column 5, lines 16-46, paragraph 2-3; figures 4-5 *	1,2	
X	US 8 234 741 B2 (BOYD THOMAS [US]; HOHLBEIN DOUGLAS [US] ET AL.) 7 August 2012 (2012-08-07) * column 3, paragraph 1; figure 2 *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			A46B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	28 July 2023	Rossini, Marco

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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28-07-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2019200744 A1	04-07-2019	US 2019200744 A1	04-07-2019
		US 2022192356 A1	23-06-2022
US 7930792 B2	26-04-2011	AU 2008206152 A1	24-07-2008
		BR PI0806618 A2	20-09-2011
		CA 2676037 A1	24-07-2008
		CN 101646369 A	10-02-2010
		CO 6210785 A2	20-10-2010
		EP 2111134 A2	28-10-2009
		ES 2483266 T3	06-08-2014
		HK 1134413 A1	30-04-2010
		KR 20090108090 A	14-10-2009
		MY 148838 A	14-06-2013
		RU 2009131463 A	27-02-2011
		TW 200913934 A	01-04-2009
		US 2008174165 A1	24-07-2008
		WO 2008089381 A2	24-07-2008
US 8234741 B2	07-08-2012	AT 524992 T	15-10-2011
		AU 2008355999 A1	12-11-2009
		BR PI0822441 A2	16-06-2015
		CA 2717371 A1	12-11-2009
		CN 102014694 A	13-04-2011
		EP 2276372 A1	26-01-2011
		ES 2371590 T3	05-01-2012
		HK 1152845 A1	16-03-2012
		KR 20100120235 A	12-11-2010
		MY 158792 A	15-11-2016
		RU 2500318 C1	10-12-2013
		TW 201023794 A	01-07-2010
		US 2010257683 A1	14-10-2010
		WO 2009136912 A1	12-11-2009

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82