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(54) **TOOTHBRUSH**

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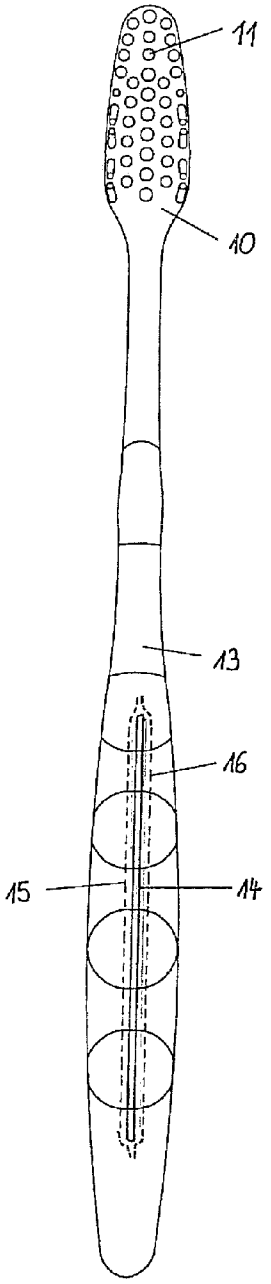
(57) **ABSTRACT**

The invention relates to a toothbrush, having a head and a handle, wherein the head is provided with bristles. So that the toothbrush can be used for squeezing toothpaste out of a squeezed-together toothpaste tube, the invention provides that a slit is cut into the handle, and is matched in its length to the width of a squeezed-out toothpaste tube, and in its width to the thickness of a squeezed-out toothpaste tube.



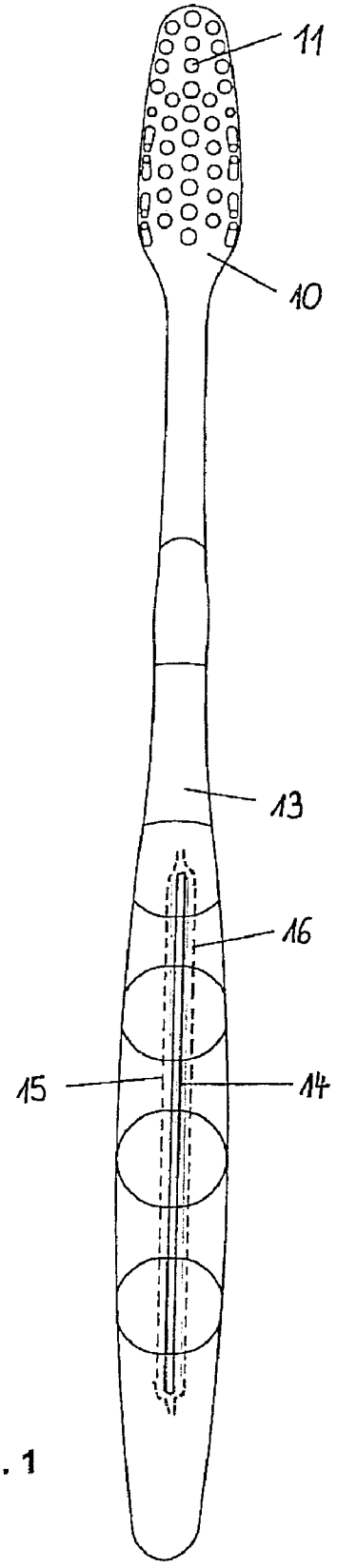



Fig. 1

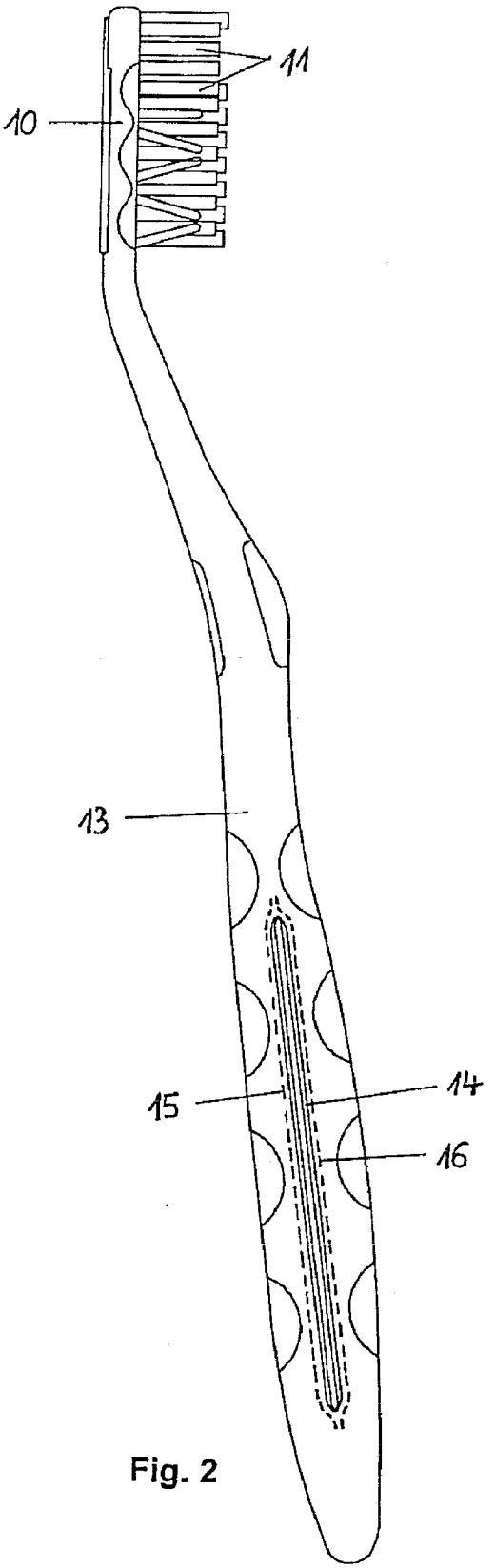



Fig. 2

# TOOTHBRUSH

## CROSS-REFERENCE TO RELATED APPLICATION

**[0001]** Not Applicable

## FEDERALLY SPONSORED RESEARCH

**[0002]** Not Applicable

## SEQUENCE LISTING OR PROGRAM

**[0003]** Not Applicable

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## BACKGROUND

**[0005]** The invention relates to a toothbrush, having a head and a handle, wherein the head is provided with bristles.

**[0006]** Conventional toothbrushes (RU 2032366) have several disadvantages. For one, their hygienic properties are insufficient. In particular, bacteria can multiply unimpedingly in unused toothbrushes. Furthermore, they only perform one function, namely, for dental hygiene.

**[0007]** It is the object of the invention to further develop this known toothbrush in such a way that the materials from a toothpaste tube employed for dental hygiene are optimally utilized, while at the same time, contributing to the protection of the environment.

**[0008]** The stated object is attained by means of the characteristics of claim **1**.

**[0009]** The basic idea of the invention is not only to design the conventional toothbrush to be more hygienic, but to develop it further, so that it also performs additional functions. In accordance with the invention it is designed to remove unused toothpaste from a tube in a better and simpler manner. Improved hygienic properties are achieved because, for example, the bristles are provided with antiseptic materials. In addition to conventional antiseptic materials, silver and other materials are used. A permanent hygienic effect of the silver is assured if the bristles are provided with a thin layer of silver. On its exterior circumference, the head of the toothbrush is provided with elastic massage elements for the gums, which are preferably arranged in parallel. A slit is cut into and through the handle of the toothbrush, wherein its length is equal to the width of a tube of toothpaste whose contents have been mostly squeezed out, and its width is equal to the thickness of a tube of toothpaste whose contents have been mostly squeezed out.

**[0010]** The initially emptied portion of the toothpaste tube can be inserted into the slit, and adjusted in such a way that more toothpaste can be squeezed out of the tube of toothpaste. Therefore, the toothpaste contained in the toothpaste tube can, for all practical purposes, be completely squeezed out of the toothpaste tube, so that the empty toothpaste tube can be disposed of without harming the environment.

**[0011]** Further advantageous embodiments of the toothbrush are apparent in the dependent claims.

**[0012]** It is thus possible to provide for a toothbrush that is further provided with a slit to be cut parallel to the width of the handle, or cut perpendicularly in respect to the width of the handle.

**[0013]** The ends of the slit terminate, convexly arched, in the handle, so that no sharp broken edges can be created at these locations when the toothpaste tube is pulled through the slit for squeezing out toothpaste.

**[0014]** The areas of the handle which have been weakened because of the slit can be substantially reinforced in that, in the one case, elastic metal elements are embedded in the handle underneath and above the slit or, in the other case, elastic metal elements are embedded next to the slit on both sides of the handle. Here, the elastic metal elements can extend past the length of the slit into the handle, and can preferably be injection-molded into the handle.

**[0015]** The head with the bristles can be an exchangeable part connected with the handle containing the slit. Differently designed heads can be connected in this way with the handle, so that only standardized heads with different bristles can be employed. In this way, careful cleaning of the teeth can be performed, good care can be given to the tongue and mouth, and the gums can be massaged.

**[0016]** The invention will be explained in greater detail by means of an exemplary embodiment represented in the drawings.

## SUMMARY

**[0017]** The invention relates to a toothbrush, having a head and a handle, wherein the head is provided with bristles. So that the toothbrush can be used for squeezing toothpaste out of a squeezed- together toothpaste tube, the invention provides that a slit is cut into the handle, and is matched in its length to the width of a squeezed-out toothpaste tube, and in its width to the thickness of a squeezed-out toothpaste tube.

**[0018]** So that no sharp broken edges are created at the ends of the slit, there is a concavely arched transition into the handle at the ends of the slit. Furthermore, elastic metal elements are embedded in the handle underneath and above the slit, and extend past the ends of the slit into the handle, and are embedded into the handle. Also, elastic metal elements reinforce the handle in the area of the slit, so that the weakened parts of the handle in the area of the slit can provide a considerably stronger pressure force to a toothpaste tube introduced into the slit.

## FIGURES

**[0019]** FIG. **1** is a broad side view of the toothbrush.

**[0020]** FIG. **2** is a lateral view of the toothbrush, in which the slit has been cut into the handle parallel in respect to the width of the handle.

## REFERENCE NUMERALS

**[0021]** **10**. Toothbrush head

**11**. Bristles

**13**. Handle

**14**. Slit

**15**. Elastic Metal Elements

**16**. Elastic Metal Elements

DESCRIPTION

**[0022]** The toothbrush has a head **10** with bristles **11** inserted into it. The head **10** is connected in one piece with a handle **13**, having a slit **14** cut into it. The head **10** with the bristles **11** and the handle **13** with the slit **14** can also be embodied as separate pieces and can be connected with each other, for example, by means of a screw connection. This separation makes it possible to selectively connect differently designed heads **10** with bristles **11** to the same handle **13** having a slit **14**, in order to expand the range of application and use of the toothbrush.

**[0023]** As represented in the exemplary embodiment in accordance with FIG. **2**, the slit **14** in the handle **13** can be cut in parallel in respect to the broad sides of the handle **13**. In this case, the slit **14** is of a length that corresponds to the width of a squeezed-out toothpaste tube, and a width that corresponds to the thickness of a squeezed-out toothpaste tube. The slit **14** can also be cut into the handle **13** perpendicularly in respect to the broad sides of the handle **13**.

**[0024]** So that no sharp broken edges are created at the ends of the slit **14**, there is a concavely arched transition into the handle **13** at the ends of the slit **14**. As FIG. **2** further shows, elastic metal elements **15**, **16** are embedded in the handle **13** underneath and above the slit **14**, and extend past the ends of the slit **14** into the handle **13** and are embedded into the handle **13**. Embedding into the handle **13** preferably takes place by means of an injection-molding process into the plastic of which the handle **13** and the head **10** are made.

**[0025]** Elastic metal elements **15** and **16** reinforce the handle **13** in the area of the slit **14**, so that the weakened parts of the handle **13** in the area of the slit **14** can provide a considerably stronger pressure force to a toothpaste tube introduced into the slit **14**.

**[0026]** In the view of the above, on the broad side of the handle **13** in accordance with FIG. **1**, the slit can also be cut perpendicularly in respect to the broad sides of the handle **13**. Elastic metal elements **15**, **16** are then embedded, or respectively injection-molded, in the handle **13** at both sides of the slit **14**.

I claim:

**1**. A toothbrush, having a head and a handle, wherein the head is provided with bristles, characterized in that a slit has been cut into the handle, the length of the slit corresponding to the width of a squeezed-out toothpaste tube, and the width of the slit corresponding to the thickness of a squeezed-out toothpaste tube.

**2**. The toothbrush in accordance with claim **1**, characterized in that the slit has been cut parallel in respect to the width of the handle.

**3**. The toothbrush in accordance with claim **1**, characterized in that the slit has been cut perpendicularly in respect to the width of the handle.

**4**. The toothbrush in accordance with claim **1**, characterized in that the ends of the slit terminate convexly arched in the handle.

**5**. The toothbrush in accordance with claim **2**, characterized in that the ends of the slit terminate convexly arched in the handle.

**6**. The toothbrush in accordance with claim **3**, characterized in that the ends of the slit terminate convexly arched in the handle.

**7**. The toothbrush in accordance with claim **2**, characterized in that elastic metal elements are embedded in the handle.

**8**. The toothbrush in accordance with claim **3**, characterized in that elastic metal elements are embedded next to the slit at both sides of the handle.

**9**. The toothbrush in accordance with claim **7**, characterized in that the elastic metal elements extend in the handle past the length of the slit.

**10**. The toothbrush in accordance with claim **8**, characterized in that the elastic metal elements extend in the handle past the length of the slit.

**11**. The toothbrush in accordance with claim **7**, characterized in that the elastic metal elements have been injection-molded into the handle.

**12**. The toothbrush in accordance with claim **8**, characterized in that the elastic metal elements have been injection-molded into the handle.

**13**. The toothbrush in accordance with claim **9**, characterized in that the elastic metal elements have been injection-molded into the handle.

**14**. The toothbrush in accordance with claim **10**, characterized in that the elastic metal elements have been injection-molded into the handle.

**15**. The toothbrush in accordance with claim **1**, characterized in that the bristles are provided or coated with antiseptic material.

**16**. The toothbrush in accordance with claims **1**, characterized in that the bristles are provided or coated with silver.

**17**. The toothbrush in accordance with claim **15**, characterized in that the head has means for massaging the gums.

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