



(19) **United States**

(12) **Patent Application Publication**  
**Sprosta et al.**

(10) **Pub. No.: US 2016/0220014 A1**

(43) **Pub. Date: Aug. 4, 2016**

(54) **METHOD OF FORMING A PRODUCT ARRAY AND PRODUCT ARRAY FORMED BY THE SAME**

*A46B 11/00* (2006.01)  
*A46B 5/00* (2006.01)

(52) **U.S. Cl.**  
CPC ..... *A46B 15/0093* (2013.01); *A46B 11/0065* (2013.01); *A46B 15/0091* (2013.01); *A46B 5/0095* (2013.01); *A46B 9/04* (2013.01); *A46D 1/02* (2013.01)

(71) Applicant: **COLGATE-PALMOLIVE COMPANY**, New York, NY (US)

(72) Inventors: **Al Sprosta**, Maplewood, NJ (US);  
**Eduardo Jimenez**, Manalapan, NJ (US)

(21) Appl. No.: **14/691,379**

(22) Filed: **Apr. 20, 2015**

**Related U.S. Application Data**

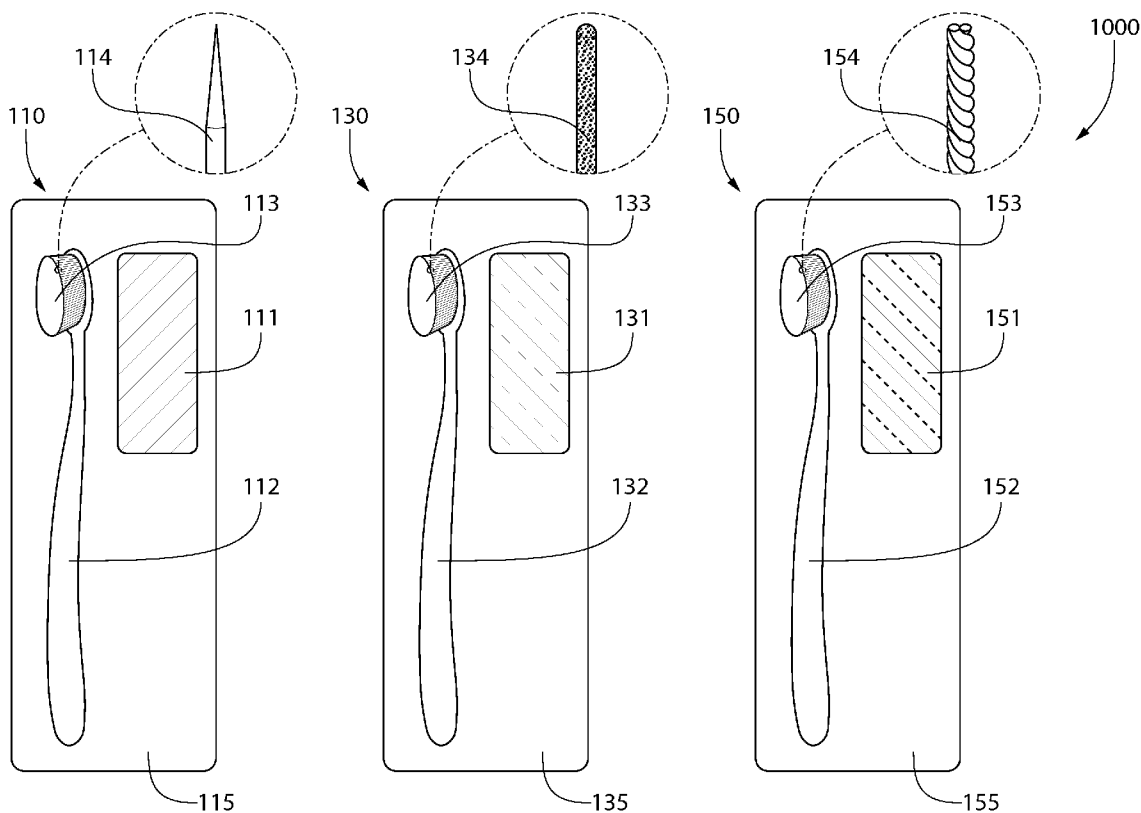
(60) Provisional application No. 62/110,922, filed on Feb. 2, 2015.

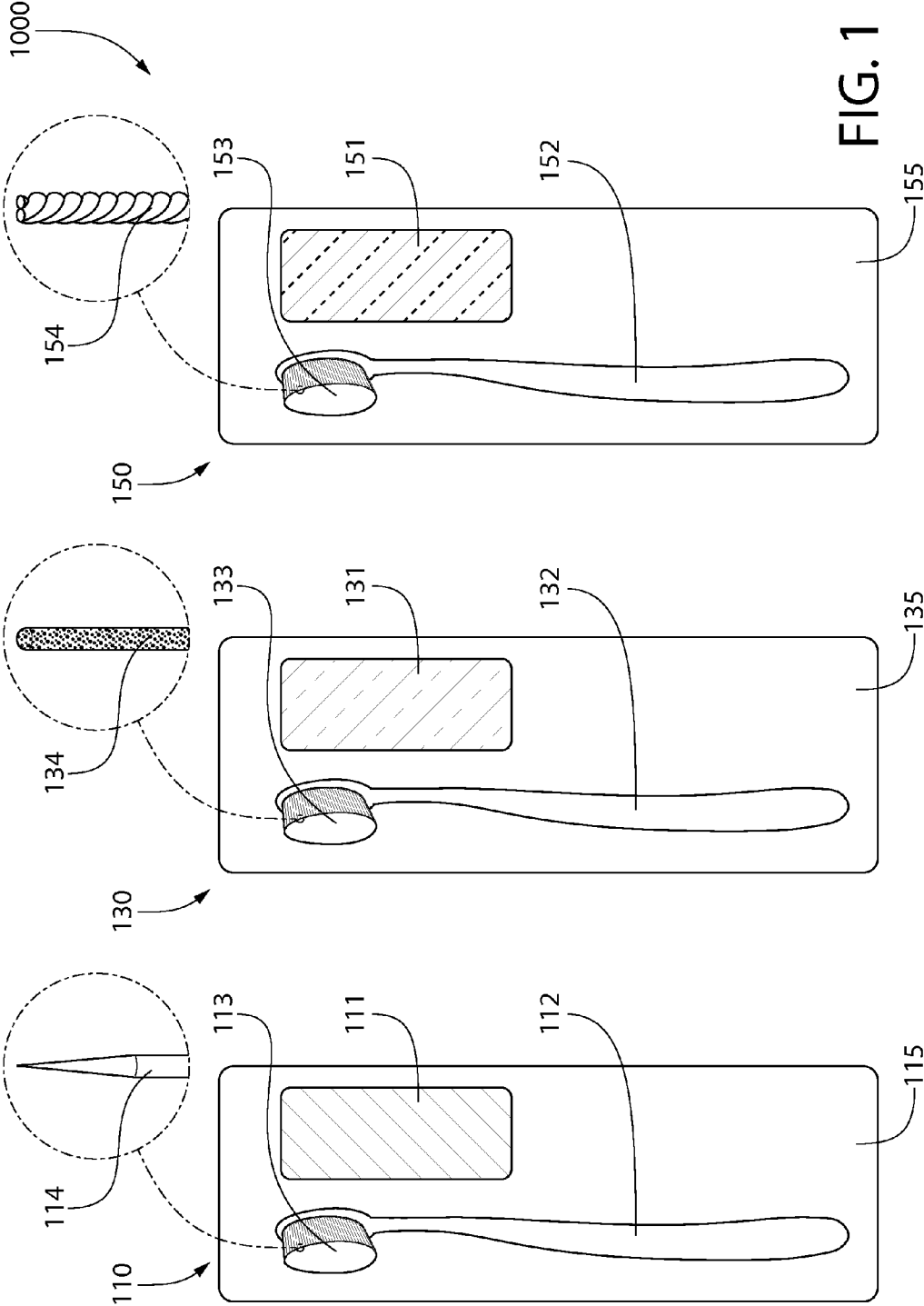
**Publication Classification**

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

(57) **ABSTRACT**

A method of forming a product array or a product array formed thereby. The method may include selecting a first oral care material having a first oral care benefit, mounting a first plurality of tooth cleaning elements comprising at least one first type of tooth cleaning element that provides the first oral care benefit to a first toothbrush, and forming a first oral care kit comprising the first oral care material and the first toothbrush. The method may also include selecting a second oral care material having a second oral care benefit that is different than the first oral care benefit, mounting a second plurality of tooth cleaning elements comprising at least one second type of tooth cleaning element that provides the second oral care benefit to a second toothbrush, and forming a second oral care kit comprising the second oral care material and the second toothbrush.





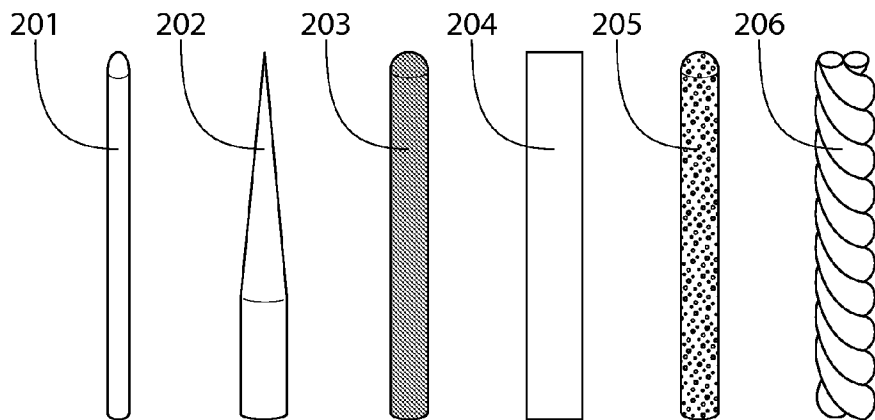


FIG. 2A

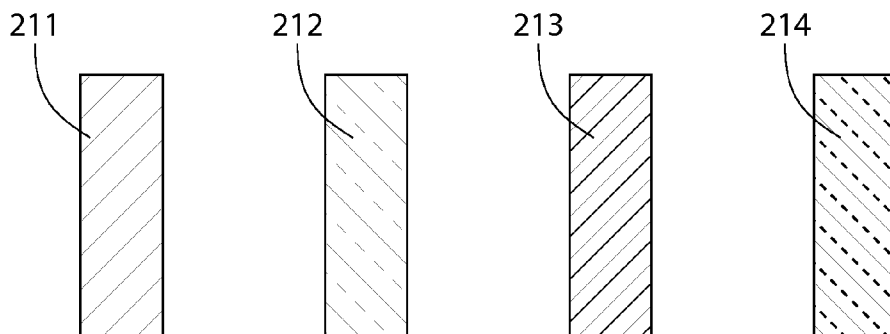


FIG. 2B

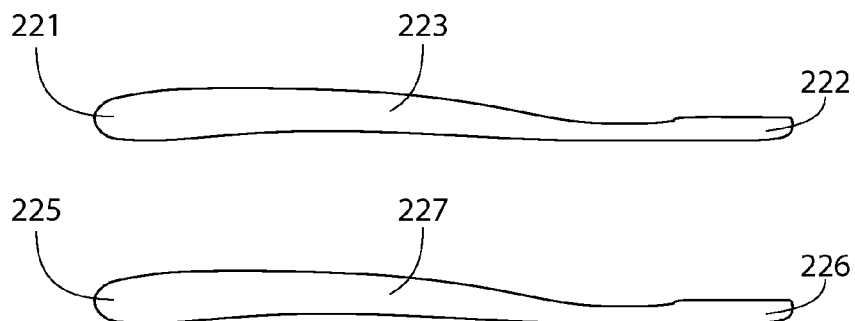


FIG. 2C

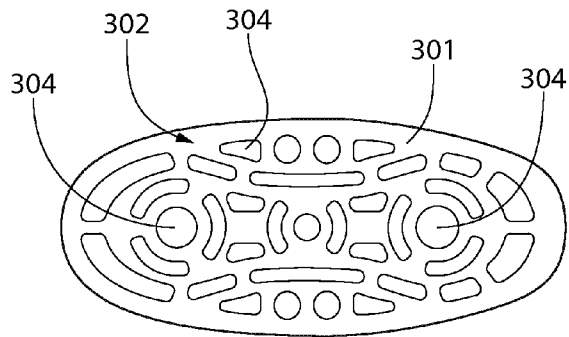


FIG. 3A

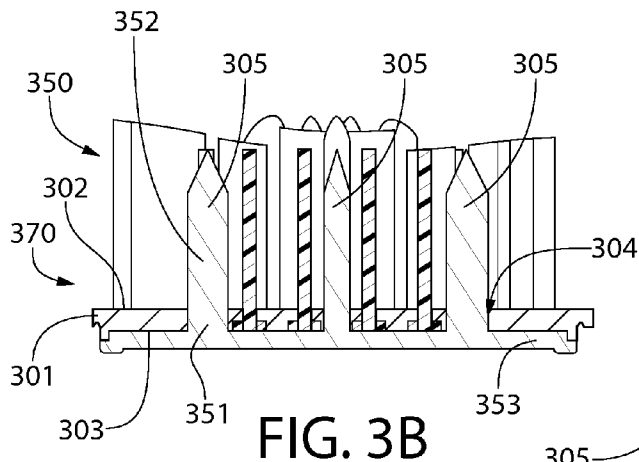


FIG. 3B

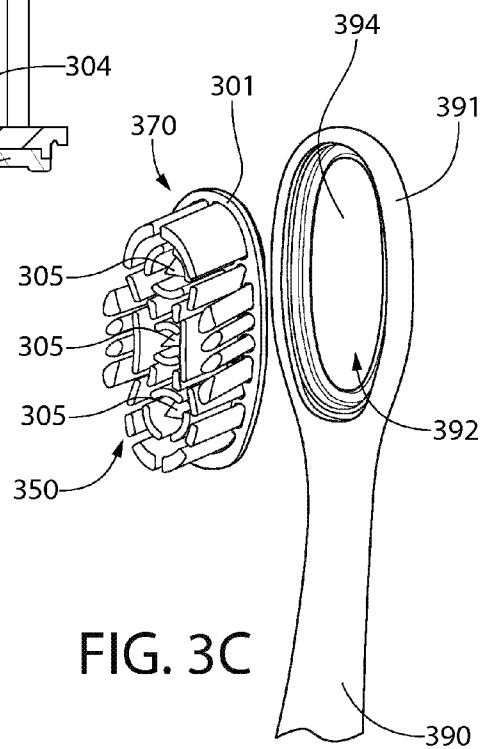


FIG. 3C

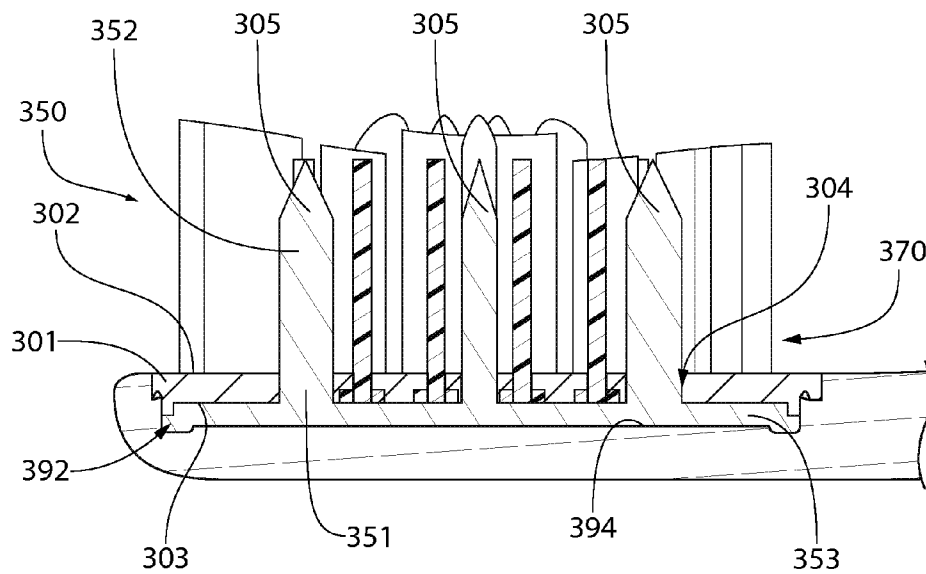


FIG. 3D

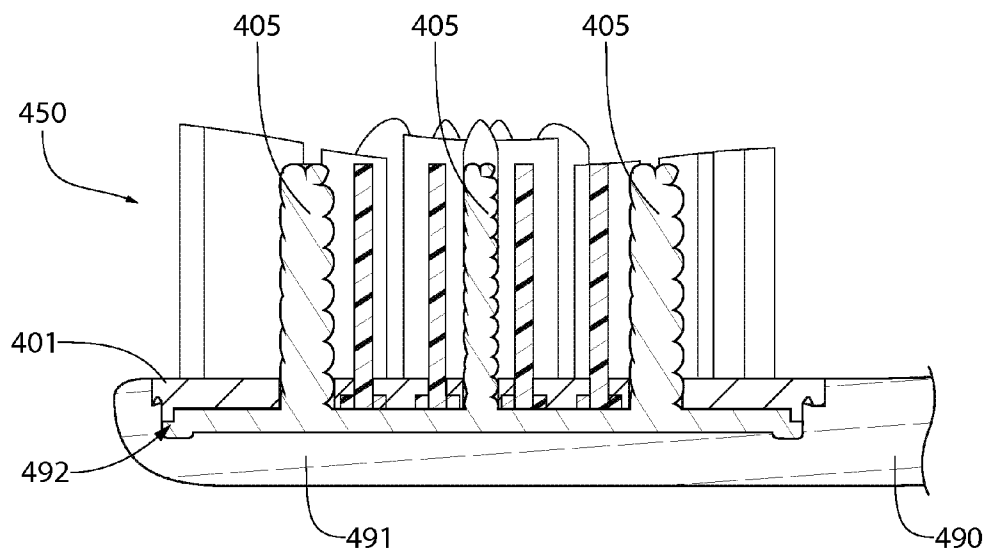


FIG. 4

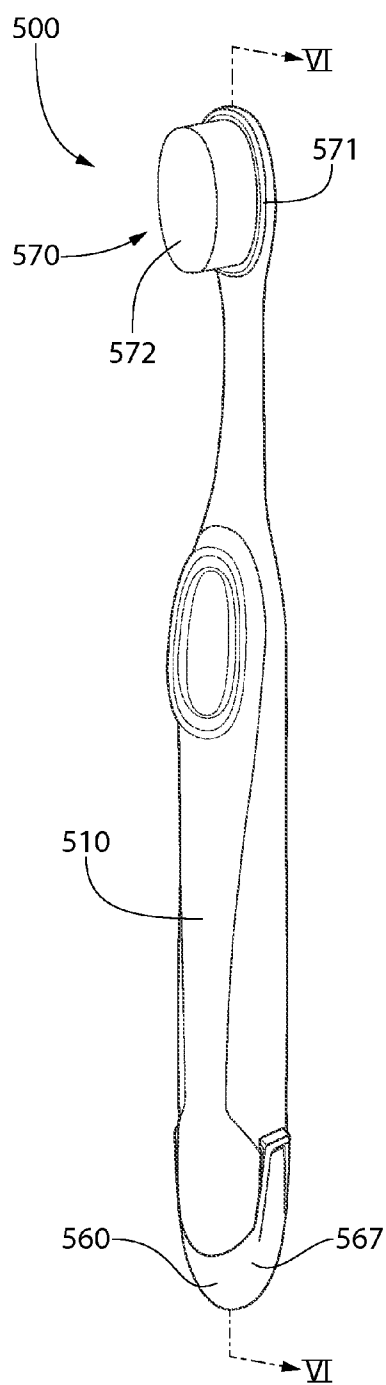


FIG. 5A

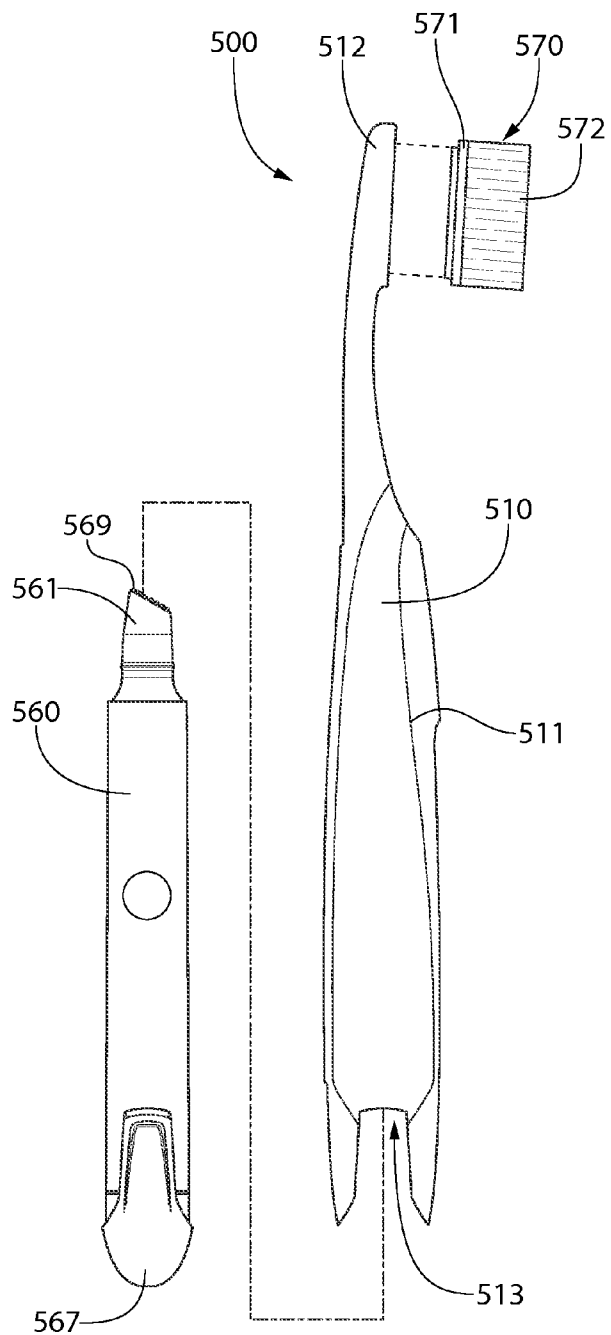


FIG. 5B

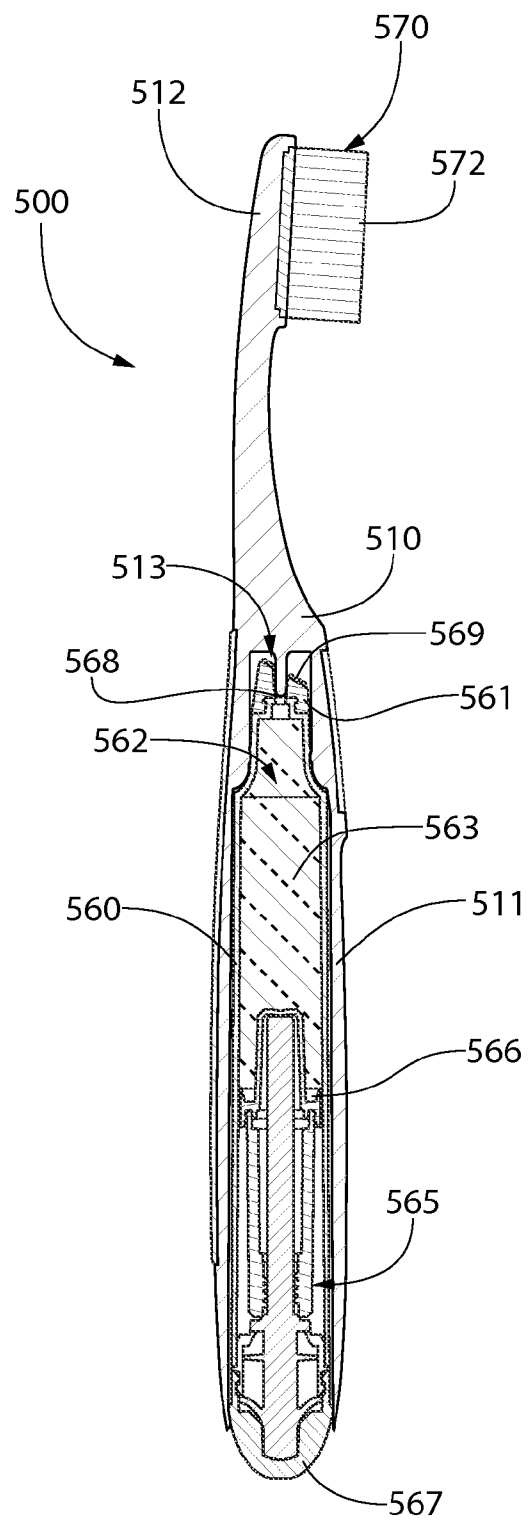


FIG. 6

**METHOD OF FORMING A PRODUCT ARRAY  
AND PRODUCT ARRAY FORMED BY THE  
SAME**

CROSS-REFERENCE TO RELATED PATENT  
APPLICATIONS

**[0001]** This application claims the benefit of priority under 35 U.S.C. §119(e) to U.S. Provisional Patent Application No. 62/110,922, filed Feb. 2, 2015, the entirety of which is incorporated herein by reference.

BACKGROUND

**[0002]** In current oral hygiene trends, consumers are seeking products that provide oral care benefits in addition to cleaning. This includes products that provide tooth whitening, products that are beneficial for sensitive teeth, products that treat oral malodor, and products that treat bacteria in the mouth. Furthermore, certain oral care materials that provide oral care benefits are most effective when paired with a specific type of cleaning element. However, there is no simple method for forming a product array of a plurality of oral care kits that properly pairs an oral care material with the most beneficial type of cleaning element for use therewith. Thus, a need exists for a method of forming a product array of a plurality of oral care kits and a product array of a plurality of oral care kits formed thereby that remedies the deficiencies in the current manufacturing methods and techniques.

BRIEF SUMMARY

**[0003]** The present invention may be directed, in one aspect, to a method of forming a product array or a product array formed thereby. The method may include selecting a first oral care material having a first oral care benefit, mounting a first plurality of tooth cleaning elements comprising at least one first type of tooth cleaning element that provides the first oral care benefit to a first toothbrush, and forming a first oral care kit comprising the first oral care material and the first toothbrush. The method may also include selecting a second oral care material having a second oral care benefit that is different than the first oral care benefit, mounting a second plurality of tooth cleaning elements comprising at least one second type of tooth cleaning element that provides the second oral care benefit to a second toothbrush, and forming a second oral care kit comprising the second oral care material and the second toothbrush.

**[0004]** In one aspect, the invention may be a method of forming a product array of a plurality of oral care kits, the method comprising: a) selecting from a plurality of oral care materials, a first oral care material that provides a first oral care benefit and a second oral care material that provides a second oral care benefit, the first oral care benefit being different than the second oral care benefit; b) selecting from a plurality of types of tooth cleaning elements, a first type of tooth cleaning element that provides the first oral care benefit and a second type of tooth cleaning element that provides the second oral care benefit; c) mounting a first plurality of tooth cleaning elements to a head portion of a first toothbrush, the first plurality of tooth cleaning elements comprising at least one of the first type of tooth cleaning element; d) mounting a second plurality of tooth cleaning elements to a head portion of a second toothbrush, the second plurality of tooth cleaning elements comprising at least one of the second type of tooth cleaning element; e) forming a first oral care kit comprising

the first oral care material and the first toothbrush; and f) forming a second oral kit comprising the second oral care material and the second toothbrush.

**[0005]** In another aspect, the invention may be a method of forming a product array of a plurality of oral care kits, the method comprising: a) providing a plurality of toothbrushes, each of the plurality of toothbrushes comprising a head portion and a reservoir; b) selecting from a plurality of oral care materials, a first oral care material that provides a first oral care benefit and a second oral care material that provides a second oral care benefit, the first oral care benefit being different than the second oral care benefit; c) selecting from a plurality of cleaning element assemblies, a first cleaning element assembly comprising a first type of tooth cleaning element that provides the first oral care benefit and a second cleaning element assembly comprising a second type of tooth cleaning element that provides the second oral care benefit; d) coupling the first cleaning element assembly to the head portion of a first toothbrush of the plurality of toothbrushes and filling the reservoir of the first toothbrush with the first oral care material; and e) coupling the second cleaning element assembly to the head portion of a second toothbrush of the plurality of toothbrushes and filling the reservoir of the second toothbrush with the second oral care material.

**[0006]** In yet another aspect, the invention may be a product array comprising: a first oral kit comprising: a first oral care material that provides a first oral care benefit; a first toothbrush comprising a first type of tooth cleaning element that provides the first oral care benefit; and a first package containing the first oral care material and the first toothbrush; and a second oral care kit comprising: a second oral care material that provides a second oral care benefit, the first oral care benefit being different than the second oral care benefit; a second toothbrush comprising a second type of tooth cleaning element that provides the second oral care benefit; and a second package containing the second oral care material and the second toothbrush.

**[0007]** Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

**[0008]** The present invention will become more fully understood from the detailed description and the accompanying drawings, wherein:

**[0009]** FIG. 1 is a schematic illustration of a product array of a plurality of oral care kits having a toothbrush and an oral care material, whereon one of the tooth cleaning elements coupled to each toothbrush is depicted in an enlarged view;

**[0010]** FIG. 2A is a schematic illustration of different types of tooth cleaning elements;

**[0011]** FIG. 2B is a schematic illustration of different types of oral care material;

**[0012]** FIG. 2C is a schematic illustration of two toothbrushes without tooth cleaning elements coupled thereto;

**[0013]** FIG. 3A is a front view of a head plate;

**[0014]** FIG. 3B is a schematic cross-sectional view of the head plate of FIG. 3A with a first type of tooth cleaning element mounted thereon;



[0015] FIG. 3C illustrates the head plate of FIG. 3B aligned with a basin of a head portion of a toothbrush;

[0016] FIG. 3D is a schematic cross-sectional view of the head plate of FIG. 3B coupled to the head portion of the toothbrush;

[0017] FIG. 4 is an illustration of the head plate of FIG. 3A with a second type of tooth cleaning element mounted thereon, the head plate coupled to a head portion of a toothbrush;

[0018] FIG. 5A is a perspective view of a toothbrush with a dispenser coupled thereto;

[0019] FIG. 5B is a view of the toothbrush and dispenser of FIG. 5A separated from one another, wherein a cleaning element assembly is exploded from the head portion of the toothbrush; and

[0020] FIG. 6 is a cross-sectional view taken along line VI-VI of FIG. 5A.

#### DETAILED DESCRIPTION

[0021] The following description of the preferred embodiment(s) is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

[0022] The description of illustrative embodiments according to principles of the present invention is intended to be read in connection with the accompanying drawings, which are to be considered part of the entire written description. In the description of embodiments of the invention disclosed herein, any reference to direction or orientation is merely intended for convenience of description and is not intended in any way to limit the scope of the present invention. Relative terms such as “lower,” “upper,” “horizontal,” “vertical,” “above,” “below,” “up,” “down,” “top” and “bottom” as well as derivative thereof (e.g., “horizontally,” “downwardly,” “upwardly,” etc.) should be construed to refer to the orientation as then described or as shown in the drawing under discussion. These relative terms are for convenience of description only and do not require that the apparatus be constructed or operated in a particular orientation unless explicitly indicated as such. Terms such as “attached,” “affixed,” “connected,” “coupled,” “interconnected,” and similar refer to a relationship wherein structures are secured or attached to one another either directly or indirectly through intervening structures, as well as both movable or rigid attachments or relationships, unless expressly described otherwise. Moreover, the features and benefits of the invention are illustrated by reference to the exemplified embodiments. Accordingly, the invention expressly should not be limited to such exemplary embodiments illustrating some possible non-limiting combination of features that may exist alone or in other combinations of features; the scope of the invention being defined by the claims appended hereto.

[0023] Referring to FIG. 1, a product array 1000 will be described in accordance with one embodiment of the present invention. In the exemplified embodiment, the product array 1000 comprises a first oral care kit 110, a second oral care kit 130, and a third oral care kit 150.

[0024] Although three oral care kits are depicted in this embodiment, the product array 1000 may include any number of oral care kits in other embodiments as desired depending on the amount of variation in the product array. Thus, the product array 1000 may include two oral care kits in some embodiments and more than three oral care kits in other embodiments.

[0025] In the exemplified embodiment, the first oral care kit 110 comprises a first oral care material 111 that provides a first oral care benefit to a user during use thereof. The first oral care kit 110 also comprises a first toothbrush 112 that comprises a first plurality of tooth cleaning elements 113. The first plurality of tooth cleaning elements 113 includes at least one first type of tooth cleaning element 114. The at least one first type of tooth cleaning element 114 also provides the first oral care benefit to the user during use of the first toothbrush 112. Thus, the first oral care material 111 and the first type of tooth cleaning element 114 provide the same first oral care benefit to a user. Finally, the first oral care kit 110 also includes a first package 115 that contains the first oral care material 111 and the first toothbrush 112.

[0026] The second oral care kit 130 comprises a second oral care material 131 that provides a second oral care benefit to a user during use thereof. The second oral care benefit may, in certain embodiments, be different than the first oral care benefit. The second oral care kit 130 also comprises a second toothbrush 132 that comprises a second plurality of tooth cleaning elements 133. The second plurality of tooth cleaning elements 133 includes at least one second type of tooth cleaning element 134. The at least one second type of tooth cleaning element 134 also provides the second oral care benefit to the user during use of the second toothbrush 132. Thus, the second oral care material 131 and the second type of tooth cleaning element 134 provide the same second oral care benefit to a user. Finally, the second oral care kit 130 also includes a second package 135 that contains the second oral care material 131 and the second toothbrush 132.

[0027] The third oral care kit 150 comprises a third oral care material 151 that provides a third oral care benefit to a user during use thereof. In certain embodiments, the third oral care benefit may be different than each of the first and second oral care benefits. The third oral care kit 150 also comprises a third toothbrush 152 that comprises a third plurality of tooth cleaning elements 153. The third plurality of tooth cleaning elements 153 includes at least one third type of tooth cleaning element 154. The at least one third type of tooth cleaning element 154 also provides the third oral care benefit to the user during use of the third toothbrush 152. Thus, the third oral care material 151 and the third type of tooth cleaning element 154 provide the same third oral care benefit to a user. Finally, the third oral care kit 150 also includes a third package 155 that contains the third oral care material 151 and the third toothbrush 152.

[0028] Thus, in each of the first, second, and third oral care kits 110, 130, 150, one of the first, second, and third oral care materials 111, 131, 151 is placed together in the respective kit with the one of the first, second, and third types of tooth cleaning elements 114, 134, 154 that provides the same oral care benefit as the oral care material in that particular kit. Specifically, the first, second, and third oral care materials 111, 131, 151 may be one of a tooth whitening agent that has an oral care benefit of tooth whitening to a user during use, a tooth anti-sensitivity agent that has an oral care benefit of treating a user's sensitive teeth, a breath freshening agent that has an oral care benefit of freshening a user's breath, and an anti-bacterial agent that has an oral care benefit of treating bacteria in a user's mouth. Furthermore, the first, second, and third types of tooth cleaning elements 114, 134, 154 may be selected from spiral bristles or elastomeric tooth cleaning elements, both of which have the oral care benefit of tooth whitening, tapered bristles or end-rounded bristles having a

diameter of 5 mils or less, both of which have the oral care benefit of tooth anti-sensitivity, charcoal bristles that have the oral care benefit of oral malodor treatment, and bristles containing an anti-bacterial additive (such as silver zeolite) that has the oral care benefit of being anti-bacterial.

[0029] Referring specifically to the embodiment exemplified in FIG. 1, in the first kit 110 the first oral care material 111 is an anti-sensitivity agent and the first type of tooth cleaning element 114 is a tapered bristle. In certain embodiments, all of the tooth cleaning elements in the first kit 110 need not be of the first type of tooth cleaning element 114, but rather at least one of the tooth cleaning elements in the first kit 110 is of the first type of tooth cleaning element 114. More specifically, in certain embodiments at least one tuft of the tooth cleaning elements consists of the first type of tooth cleaning elements 114, and in some embodiments multiple tufts of the tooth cleaning elements consist of the first type of tooth cleaning elements 114 while others of the tufts of tooth cleaning elements contain cleaning elements that are not of the first type. It is appropriate to include the anti-sensitivity agent and the tapered bristle together in the first kit 110 because both anti-sensitivity agents and tapered bristles provide the same oral care benefit of treating tooth sensitivity.

[0030] Furthermore, in the second kit 130 the second oral care material 131 is an anti-bacterial agent and the second type of tooth cleaning element 134 is a bristle containing an anti-bacterial additive. All of the tooth cleaning elements in the second kit 130 need not be of the second type of tooth cleaning element 134, but rather at least one of the tooth cleaning elements in the second kit 130 is of the second type of tooth cleaning element 134. More specifically, in certain embodiments at least one tuft of the tooth cleaning elements consists of the second type of tooth cleaning elements 134, and in some embodiments multiple tufts of the tooth cleaning elements consist of the second type of tooth cleaning elements 134 while others of the tufts of tooth cleaning elements contain cleaning elements that are not of the second type. It is appropriate to include the anti-bacterial agent and the bristle containing an anti-bacterial additive together in the second kit 130 because both anti-bacterial agents and bristles containing an anti-bacterial additive provide the same oral care benefit of being anti-bacterial or treating bacteria in a user's mouth.

[0031] Moreover, in the third kit 150 the third oral care material 151 is a tooth whitening agent and the third type of tooth cleaning element 154 is a spiral bristle. All of the tooth cleaning elements in the third kit 150 need not be of the third type of tooth cleaning element 154, but rather at least one of the tooth cleaning elements 154 in the third kit 150 is of the third type of tooth cleaning element 154. More specifically, in certain embodiments at least one tuft of the tooth cleaning elements consists of the third type of tooth cleaning elements 154, and in some embodiments multiple tufts of the tooth cleaning elements consist of the third type of tooth cleaning elements 154 while others of the tufts of tooth cleaning elements contain cleaning elements that are not of the third type. It is appropriate to include the tooth whitening agent and the spiral bristle together in the third kit 150 because both tooth whitening agents and spiral bristles provide the same oral care benefit of tooth whitening. The manner of pairing oral care materials with types of tooth cleaning elements within each kit of the product array 1000 will be described in more detail below.

[0032] In FIG. 1, the various components of each of the kits 110, 130, 150 are illustrated schematically for simplicity. The

package 115, 135, 155 may be any type of package that is commonly used to package oral care merchandise. For example, the package 115, 135, 155 may be the type that has a cardboard backer panel and a three-dimensional transparent plastic cover such that the merchandise (i.e., toothbrushes 113, 133, 153 and oral care material 111, 131, 151) is positioned within a cavity formed between the backer panel and the cover. In other embodiments, the package 115, 135, 155 may be a sealed plastic container that is either rigid or non-rigid (i.e., plastic bag). In still other embodiments, the package 115, 135, 155 may be omitted and the oral care material 111, 131, 151 and toothbrush 112, 132, 152 may be coupled together to form the kits 110, 130, 150. Thus, the invention is not intended to be limited by the specific details of the package 115, 135, 155 in all embodiments, but rather it is to be understood that the package 115, 135, 155 may be any mechanism for grouping a toothbrush and an oral care material together in a kit for retail. Furthermore, the toothbrushes 112, 132, 152 within each kit 110, 130, 150 are generically illustrated and may have various contours, shapes, sizes, colors, and the like. In certain embodiments it is preferable that the toothbrushes 112, 132, 152 are all structurally identical except with regard to the included type of tooth cleaning element that provides one of the oral care benefits described herein. Of course, the invention is not to be so limited and the toothbrushes 112, 132, 152 may be different from one another in some aspects in other embodiments.

[0033] Referring to FIGS. 2A-2C, a method of forming a product array of a plurality of oral care kits will be described. FIG. 2A illustrates a plurality of different types of tooth cleaning elements, including an end-rounded bristle with a diameter of 5 mils or less 201, a tapered bristle 202, a charcoal bristle 203, an elastomeric tooth cleaning element 204, a bristle containing an anti-bacterial agent 205, and a spiral bristle 206. FIG. 2B schematically illustrates a plurality of different types of oral care materials, including an anti-sensitivity agent 211, an anti-bacterial agent 212, a breath freshening agent 213, and a tooth whitening agent 214. Although the above-mentioned types of agents are used in the description, the invention is not to be so limited in all embodiments and the types of oral care materials may include fluoride, tartar protection agents, oxidative agents, enamel strengthening or repair agents, tooth erosion preventing agents, a gum health active, a nutritional ingredient, a tartar control or anti-stain ingredient, an enzyme, a sensate ingredient, a flavor or flavor ingredient, an oral malodor reducing agent, an anti-attachment agent or sealant, a diagnostic solution, an occluding agent, a dry mouth relief ingredient, a catalyst to enhance the activity of any of these agents, colorants or aesthetic ingredients, arginine bicarbonate, chlorhexidine, triclosan, CPC, zinc oxide and combinations thereof. In certain embodiments, the oral care material may be free of a dentifrice as the oral care material is intended to supplement traditional brushing of the teeth rather than supplant it.

[0034] FIG. 2C illustrates a first toothbrush 221 and a second toothbrush 222, each depicted without bristles or tooth cleaning elements. The first toothbrush 221 has a head portion 222 and a handle portion 223 and the second toothbrush 225 has a head portion 226 and a handle portion 227. Each of the first and second toothbrushes 221, 225 is structurally identical at this stage of the method. To form the product array, a first one of the oral care materials 211-214 that provides a first oral care benefit and a second one of the oral care material 211-214 that provides a second oral care benefit are selected, with

the first and second oral care materials **211-214** and the first oral care benefit and the second oral care benefit being different from one another. After selection of the first and second oral care materials, the next step is to select a first type of the tooth cleaning elements **201-206** that provides the first oral care benefit to place in a kit with the first one of the oral care materials **211-214** and a second type of the tooth cleaning elements **201-206** that provides the second oral care benefit to place in a kit with the second one of the oral care materials **211-214**.

**[0035]** If the first one of the oral care materials that is selected is the anti-sensitivity agent **211**, it is known that the first oral care benefit is tooth anti-sensitivity. When selecting the first type of tooth cleaning elements that will be coupled to the toothbrush that forms a kit with the selected first one of the oral care materials (the anti-sensitivity agent), the tooth cleaning element that shares the first oral care benefit of treating bacteria will be selected. Therefore, in this example, the first type of tooth cleaning element will either be the tapered bristle **202** or the end-rounded bristle having a diameter of 5 mils or less **201** because both of those types of tooth cleaning elements have a benefit of tooth anti-sensitivity.

**[0036]** Similarly, if the second one of the oral care materials that is selected is the tooth whitening agent **214**, it is known that the second oral care benefit is tooth whitening. When selecting the second type of tooth cleaning elements that will be coupled to the toothbrush that forms a kit with the second one of the oral care materials (the tooth whitening agent), the tooth cleaning element that shares the second oral care benefit of tooth whitening will be selected. Therefore, in this example the second type of tooth cleaning element will either be the spiral bristle **206** or the elastomeric tooth cleaning element **204** because both of those types of tooth cleaning elements have a tooth whitening benefit.

**[0037]** Of course, if the anti-bacterial agent **212** is selected, then the bristle containing an anti-bacterial additive **205** will be selected and if the breath freshening agent **213** is selected the charcoal bristle **203** will be selected. Thus, in forming the product array **1000**, the type of tooth cleaning element selected will have the same oral care benefit as the oral care material that the toothbrush that the tooth cleaning element is coupled to will be paired with in a kit. Although in the above description the oral care material is selected first, the invention is not to be so limited and the type of tooth cleaning element may be selected first, followed by selecting the oral care material that shares the same oral care benefit therewith.

**[0038]** After the types of tooth cleaning elements are selected, a first plurality of tooth cleaning elements are coupled to the head portion **222** of the first toothbrush **221**. The first plurality of tooth cleaning elements will comprise at least one of the first type of tooth cleaning elements, which in the example above is either the tapered bristle **202** or the end-rounded bristle having a diameter of 5 mils or less **201** (or one or more of each of the tapered bristle **202** and the end-rounded bristle **201**). Thus, the first plurality of tooth cleaning elements need not comprise only the first type of tooth cleaning elements, but may instead include some of the first type of tooth cleaning elements along with other tooth cleaning elements. The first type of tooth cleaning elements may be clustered together to form a tuft that comprises only the first type of tooth cleaning elements, or the first type of tooth cleaning elements may be included in tufts with other types of tooth cleaning elements.

**[0039]** Similarly, a second plurality of tooth cleaning elements are coupled to the head portion **226** of the second toothbrush **225**. The second plurality of tooth cleaning elements will comprise at least one of the second type of tooth cleaning elements, which in the above example is either the spiral bristle **206** or the elastomeric tooth cleaning element **204**. Thus, the second plurality of tooth cleaning elements need not comprise only the second type of tooth cleaning elements, but may instead include some of the second type of tooth cleaning elements along with other tooth cleaning elements. The second type of tooth cleaning elements may be clustered together to form a tuft that comprises only the second type of tooth cleaning elements, or the second type of tooth cleaning elements may be included in tufts with other types of tooth cleaning elements.

**[0040]** Thus, the plurality of tooth cleaning elements may include the selected type of tooth cleaning element along with any other variety of tooth cleaning elements mounted on the head portions **222, 226** of the toothbrushes **221, 225**. These other tooth cleaning elements refers to any structure that can be used to clean, polish, or wipe the teeth and/or soft oral tissue (e.g. tongue, cheek, gums, etc.) through relative surface contact. Common examples of tooth cleaning elements include, without limitation, bristle tufts, filament bristles, fiber bristles, nylon bristles, spiral bristles, rubber bristles, elastomeric protrusions, flexible polymer protrusions, combinations thereof and/or structures containing such materials or combinations. Suitable elastomeric materials include any biocompatible resilient material suitable for uses in an oral hygiene apparatus. To provide optimum comfort as well as cleaning benefits, the elastomeric material of the tooth cleaning element may have a hardness property in the range of A8 to A25 Shore hardness. One suitable elastomeric material is styrene-ethylene/butylene-styrene block copolymer (SEBS) manufactured by GLS Corporation. Nevertheless, SEBS material from other manufacturers or other materials within and outside the noted hardness range could be used.

**[0041]** Furthermore, the tooth cleaning elements may be mounted to the head portions **222, 226** of the toothbrushes **221, 225** in any manner known in the art. For example, the tooth cleaning elements can be mounted to the head portions **222, 226** using staples/anchors. Alternatively, techniques such as in-mold tufting, anchor free tufting ("AFT"), or AMR can be used to mount the tooth cleaning elements to the head portions **222, 226**. One example of mounting tooth cleaning elements to a head of a toothbrush using AFT will be described in detail below with reference to FIGS. 3A-3D.

**[0042]** After the first plurality of tooth cleaning elements that includes at least one of the first type of tooth cleaning element are mounted to the head portion **222** of the first toothbrush **221** and the second plurality of tooth cleaning elements that includes at least one of the second type of tooth cleaning elements are mounted to the head portion **226** of the second toothbrush **225**, the oral care kits are formed. Specifically, a first oral care kit is formed that comprises the first oral care material and the first toothbrush **221** with the first plurality of tooth cleaning elements mounted thereon (and including at least one of the first type of tooth cleaning element) and a second oral care kit is formed that comprises the second oral care material and the second toothbrush **225** with the second plurality of tooth cleaning elements mounted thereon (and including at least one of the second type of tooth

cleaning element). The kits may be provided in a package as described above with reference to FIG. 1 or otherwise as described herein.

[0043] Referring now to FIGS. 3A-3D, one method of mounting tooth cleaning elements to a head portion of a toothbrush will be described. Although the method is described herein below with reference to one of the toothbrushes, it should be appreciated that the description set forth herein below may be used for coupling the tooth cleaning elements to each of the toothbrushes in the product array. In the exemplified embodiment, a first head plate 301 is formed, then a first plurality of tooth cleaning elements 350 are coupled to the first head plate 301 to form a first cleaning element assembly 370. Next, the first cleaning element assembly 370 is coupled to a first head portion 391 of a first toothbrush 390. The specifics of this technique are set forth below.

[0044] Referring to FIG. 3A, the first head plate 301 is illustrated after formation thereof, but before any tooth cleaning elements or other materials are added and/or connected to the first head plate 301. In certain embodiments the first head plate 301 is formed by an injection molding technique, although other techniques may be used. More specifically, to form the first head plate 301 a mold having a mold cavity in the shape of the first head plate 301 is filled with a molten plastic material. The molten plastic material is then cooled and allowed to harden. Upon hardening, the first head plate 301 is formed and is removed from the mold cavity of the mold. Although the first head plate 301 and the base structure of the first toothbrush 390 can be formed of the same material, the first head plate 301 is a completely separate structure from the base structure of the first toothbrush 390.

[0045] The first head plate 301 comprises a front surface 302 and an opposing rear surface 303. Furthermore, the first head plate 301 comprises a plurality of openings 304 formed therethrough that extend from the front surface 302 to the rear surface 303. The plurality of openings 304 provide locations at which tooth cleaning elements can be inserted during creation of the first cleaning element assembly 370 as described below. Only some of the openings 304 are labeled in the drawings in order to avoid clutter.

[0046] Referring to FIG. 3B, forming the first cleaning element assembly 370 from the first head plate 301 and a first plurality of tooth cleaning elements 350 will be described. As described above, the first plurality of tooth cleaning elements 350 will include at least one of the selected type of tooth cleaning element. In the exemplified embodiment, the selected type of tooth cleaning element is a tapered bristle 305 that provides the oral care benefit of tooth anti-sensitivity. However, the selected type of tooth cleaning element may be any of the other types of tooth cleaning elements described above and illustrated in FIG. 2A depending on the type of oral care material that the first toothbrush 390 will be placed together with to form a kit. Although the tapered bristle 305 appears as a single tapered bristle 305 (or a tapered tuft), the invention is not to be so limited and the tuft may include a plurality of tapered bristles or a combination of tapered bristles and other tooth cleaning elements as desired.

[0047] To couple the first tooth cleaning elements 350 to the first head plate 301, the first tooth cleaning elements 350 are inserted through the openings 304 in the first head plate 301 so that anchor portions 351 of the first tooth cleaning elements 350 are adjacent to the rear surface 303 of the first head plate 301 and first portions 352 of the first tooth cleaning elements

350 extend from the front surface 302 of the first head plate 301. After positioning the first tooth cleaning elements 350 within the openings 304 of the first head plate 301, a heated plate or iron is placed into contact with or adjacent to the anchor portions 351 of the first tooth cleaning elements 350 to melt the anchor portions 351 of the first tooth cleaning elements 350 and form a melt matte 353. Melting the anchor portions 351 of the first tooth cleaning elements 350 causes the anchor portions 351 of the first tooth cleaning elements 350 to fuse together to form the melt matte 353 adjacent to the rear surface 303 of the first head plate 301. Thus, the melt matte 353 may be considered a bristle melt, such that the melt matte 353 is formed by melting the anchor portions 351 of the first tooth cleaning elements 350 and then enabling the melted anchor portions 351 to cool and solidify. Thus, the melt matte 353 is essentially a thin layer of the bristle material that is located on or adjacent to the rear surface 303 of the first head plate 301. Once the first tooth cleaning elements 350 are coupled to or mounted on the first head plate 301 in this manner, the first cleaning element assembly 370 is formed.

[0048] Referring to FIG. 3C, after formation, the first cleaning element assembly 370 is positioned adjacent to the first head portion 391 of the first toothbrush 390. In embodiments that use this technique for mounting the first tooth cleaning elements 350 to the first toothbrush 390, the first head portion 391 of the first toothbrush 390 comprises a basin 392 for receiving the first cleaning element assembly 370. The first cleaning element assembly 370 is then positioned into the basin 392 of the first head portion 391 of the first toothbrush 390 and attached thereto. The first cleaning element assembly 370, and specifically the first head plate 301, can be attached to the first head portion 391 of the first toothbrush 392 by fusing the first head plate 301 to the first head portion 391 of the first toothbrush 392. The term fusing includes ultrasonic welding, thermal welding, sonic welding, melting, and thermal fusion. Other techniques for securing the first head plate 301 to the first head portion 391 of the first toothbrush 392 include tight fit, interference fit, snap-fit threaded engagement, adhesion, fasteners, or the like. As best seen in FIG. 3D, when the first cleaning element assembly 370 is coupled to the first head portion 391 of the first toothbrush 392, the melt matte 353 is sandwiched between the rear surface 303 of the first head plate 301 and a floor 394 of the basin 392.

[0049] FIGS. 3A-3D illustrate the technique for forming the first cleaning element assembly 370 and coupling the first cleaning element assembly 370 to the first head portion 391 of the first toothbrush 390. In the embodiment of FIGS. 3A-3D, the first plurality of cleaning elements 350 include tapered bristles 305 and other tooth cleaning elements. Thus the first toothbrush 390 of FIGS. 3A-3D would be packaged together with an oral care material that is an anti-sensitivity agent because both tapered bristles and anti-sensitivity agents provide an oral care benefit of tooth anti-sensitivity.

[0050] Referring briefly to FIG. 4, a second toothbrush 490 having a second head portion 491 with a second basin 492 formed therein is illustrated. Furthermore, a second head plate 401 having a second plurality of tooth cleaning elements 450 mounted thereon (a second cleaning element assembly 470) is coupled to the second head portion 491 of the second toothbrush 490 within the second basin 492. The manner of coupling the second plurality of tooth cleaning elements 450 to the second head plate 401 and of coupling the second head plate 401 to the second head portion 491 of the second tooth-

brush 490 is the same as that described above with reference to FIGS. 3A-3D and will not be repeated herein in the interest of brevity.

[0051] The main distinction between FIG. 4 and FIGS. 3A-3D is that in FIG. 4, the second plurality of tooth cleaning elements 450 does not include tapered bristles, but rather includes spiral bristles 405. Thus, except for the inclusion of spiral bristles 405 instead of tapered bristles, the second toothbrush 490 is structurally identical to the first toothbrush 390. In this regard, the second toothbrush 390 of FIG. 4 would be packaged together with an oral care material that is a tooth whitening agent because both spiral bristles and tooth whitening agents provide an oral care benefit of tooth whitening.

[0052] In this manner, a large amount of the toothbrushes can be formed that are structurally identical in shape and structure. Then, various cleaning element assemblies can be coupled to the toothbrushes in the manner described above with regard to FIGS. 3A-3D. The cleaning element assemblies may include different bristle patterns or different special types of tooth cleaning elements (selected from end-rounded with diameter of 5 mils or less, tapered, charcoal, elastomeric, bristle with anti-bacterial additive, and spiral). Specifically, while one cleaning element assembly may include one or more spiral bristles, another cleaning element assembly may include one or more tapered bristles and another cleaning element assembly may include one or more charcoal bristles. The various toothbrushes can then be paired, based on the type of bristles used on the cleaning element assembly, with one of the oral care materials to form a kit so that the type of bristles and the oral care materials forming each respective kit impart the same oral care benefit during use.

[0053] In certain embodiments, the various toothbrushes can be formed and various cleaning element assemblies with various tooth cleaning element types and patterns can be formed. The cleaning element assemblies may have the same size and shape, and each of the toothbrushes may have a basin with the same size and shape. Thus, the particular cleaning element assembly can be selected for coupling to the toothbrush based on the oral care material that will be paired with that toothbrush to form a kit. Thus, rather than just changing out some bristles, in certain embodiments entirely different bristle patterns including different types of tooth cleaning elements may be used depending on the oral care material paired with the particular toothbrush to form the kit. This is because some bristle patterns may be better suited for tooth whitening while other bristle patterns may be better suited for tooth anti-sensitivity, oral malodor treatment, or anti-bacterial treatment.

[0054] Referring now to FIGS. 5A-5C, one particular embodiment of an oral care system 500 is illustrated and will be described. To form a product array, a plurality of the oral care systems 500 can be packaged separately to form oral care kits (as described above with reference to FIG. 1), and the plurality of kits collectively form the product array. Each of the oral care systems 500 may include different combinations of types of tooth cleaning elements and oral care materials. Specifically, similar to the discussion above, each oral care system 500 will have a toothbrush 510 with a type of tooth cleaning element mounted thereon that imparts a specific oral care benefit and a dispenser 560 containing an oral care material that provides the same oral care benefit as the type of tooth cleaning element mounted on the toothbrush 510.

[0055] In this embodiment, the toothbrush 510 comprises a handle portion 511 and a head portion 512. The head portion

512 may include a basin as was described above so that a cleaning element assembly 570 comprising a head plate 571 and a plurality of tooth cleaning elements 572 coupled to the head plate 571 can be attached to the head portion 512 of the toothbrush 510. The discussion of FIGS. 3A-3D above with regard to this process is applicable to this embodiment. The plurality of tooth cleaning elements 572 will include at least one cleaning element that is selected from the various types of cleaning elements illustrated in FIG. 2A and described above.

[0056] The handle portion 511 of the toothbrush 510 comprises a cavity 513. In the exemplified embodiment, the cavity 513 provides a location into which the dispenser 560 can be positioned for detachably coupling the dispenser 560 to the toothbrush 510. In certain other embodiments the cavity 513 may be an enclosed cavity that forms a reservoir for storing product such as oral care material. Thus, in some embodiments the dispenser 560 may be omitted and the oral care material may be located directly in the cavity 513 of the handle portion 511 of the toothbrush 510.

[0057] In the exemplified embodiment the dispenser 560 can transition between a first position (FIG. 5A) wherein the dispenser 560 is located within the cavity 513 of the toothbrush 510 and detachably coupled to the toothbrush 510 and a second position (FIG. 5B) wherein the dispenser 560 is removed from the cavity 513 and is separated from the toothbrush 510. The first position may be a storage position such that the dispenser 560 is stored within the cavity 513 of the toothbrush 510 during periods of time that the dispenser 560 is not being used to dispense product into a user's oral cavity. The second position may be a use position such that an applicator 561 of the dispenser 560 is exposed for dispensing product (i.e., an oral care material) into a user's oral cavity.

[0058] The dispenser 560 forms a housing having a reservoir 562 that stores an oral care material 563, such as any of the different types of oral care material described herein with reference to FIG. 2B. The reservoir 562 can be filled with any of the oral care materials described above (i.e., tooth anti-sensitivity agent, tooth whitening agent, breath freshening agent, anti-bacterial agent, or the like) and the dispenser 560 can be paired together to form a kit with a toothbrush 510 that includes a tooth cleaning element that imparts the same oral care benefit as the oral care material stored in the reservoir 562 of the dispenser 560.

[0059] The dispenser 560 may include a dispensing mechanism 565 to facilitate dispensing of the oral care material 563 from the reservoir 562 into a user's oral cavity for treatment thereof. In the exemplified embodiment, the dispensing mechanism 565 is an elevator mechanism 566 that is operably coupled to an actuator 567 such that actuating the actuator 567 causes the elevator mechanism 566 to move within the reservoir 562, thereby causing the oral care material 563 to be dispensed. The dispenser 560 includes a dispensing orifice 568 that provides a point of egress for the oral care material 563 to be dispensed from the reservoir 562. The applicator 561 may be formed of a thermoplastic elastomer and may be configured for direct contact with a user's teeth and oral surfaces for direct application of the oral care material. In the exemplified embodiment the applicator 561 includes a plurality of nubs 569, although the invention is not to be so limited in all embodiments and the nubs 569 (and even the applicator entirely) may be omitted in some embodiments.

[0060] In certain embodiments, the method of forming the product array includes providing a selected first oral care material that provides a first oral care benefit into the reservoir

562 of a first one of the dispensers 560. The method than includes detachably coupling the first one of the dispensers 560 to a first one of the toothbrushes 510 that comprises a first type of tooth cleaning element that provides the same first oral care benefit as the first oral care material, thereby forming a first oral care system 500 that includes the first one of the toothbrushes 510 and the first one of the dispensers 560. Finally, the method includes packaging the first oral care system 500 in a first package to form a first oral care kit. In one specific non-limiting embodiment the first oral care material is a tooth whitening agent and the first type of tooth cleaning element is a spiral bristle.

[0061] Furthermore, the method includes providing a selected second oral care material that provides a second oral care benefit into the reservoir 562 of a second one of the dispensers 560. The method then includes detachably coupling the second one of the dispensers 560 to a second one of the toothbrushes 510 that comprises a second type of tooth cleaning element that provides the same second oral care benefit as the second oral care material thereby forming a second oral care system 500. Finally, the method includes packaging the second oral care system 500 in a second package to form a second oral care kit. In one specific non-limiting embodiment the second oral care material is a tooth anti-sensitivity agent and the second type of tooth cleaning element is a tapered bristle or an end-rounded bristle having a diameter of 5 mils or less.

[0062] In certain embodiments the kits may be formed by packaging one of the dispensers 560 and one of the toothbrushes 510 in a package without first detachably coupling the dispenser 560 to the toothbrush 510. Thus, in certain embodiments the step of detachably coupling the dispenser 560 to the toothbrush 510 before packaging is optional, and the dispenser 560 and the toothbrush 510 may be packaged together so that both are visible and the dispenser 560 is not hidden from view by being located within the cavity 513 of the toothbrush 510.

[0063] As described above, the oral care material 563 may be a tooth whitening agent, an anti-bacterial agent, a tooth anti-sensitivity agent, a breath freshening agent, or the like as may be desired. Furthermore, the type of tooth cleaning elements that are included with the plurality of tooth cleaning elements 572 may be selected so that at least one of the plurality of tooth cleaning elements is of a type that imparts the same benefit as the oral care material 563 that is disposed within the reservoir 563.

[0064] Thus for example, if the oral care material 563 in the kit is a tooth whitening agent, at least one of the tooth cleaning elements 572 on the toothbrush in the kit would be a spiral bristle or an elastomeric tooth cleaning element to provide a benefit of tooth whitening. If the oral care material 563 in the kit is an anti-sensitivity agent, at least one of the tooth cleaning elements 572 on the toothbrush in the kit would be a tapered bristle or an end-rounded bristle having a diameter of 5 mils or less to provide a benefit of anti-sensitivity. If the oral care material 563 in the kit is a breath freshening agent, at least one of the tooth cleaning elements 572 on the toothbrush in the kit would be a charcoal bristle to provide a benefit of treating oral malodor. Finally, if the oral care material 563 in the kit is an anti-bacterial agent, at least one of the tooth cleaning elements 572 on the toothbrush in the kit would be a bristle containing an anti-bacterial additive (such as silver zeolite) to provide a benefit of anti-bacterial treatment.

[0065] As used throughout, ranges are used as shorthand for describing each and every value that is within the range. Any value within the range can be selected as the terminus of the range. In addition, all references cited herein are hereby incorporated by reference in their entireties. In the event of a conflict in a definition in the present disclosure and that of a cited reference, the present disclosure controls.

[0066] While the foregoing description and drawings represent the exemplary embodiments of the present invention, it will be understood that various additions, modifications and substitutions may be made therein without departing from the spirit and scope of the present invention as defined in the accompanying claims. In particular, it will be clear to those skilled in the art that the present invention may be embodied in other specific forms, structures, arrangements, proportions, sizes, and with other elements, materials, and components, without departing from the spirit or essential characteristics thereof. One skilled in the art will appreciate that the invention may be used with many modifications of structure, arrangement, proportions, sizes, materials, and components and otherwise, used in the practice of the invention, which are particularly adapted to specific environments and operative requirements without departing from the principles of the present invention. The presently disclosed embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being defined by the appended claims, and not limited to the foregoing description or embodiments.

What is claimed is:

1. A method of forming a product array of a plurality of oral care kits, the method comprising:
  - a) selecting from a plurality of oral care materials, a first oral care material that provides a first oral care benefit and a second oral care material that provides a second oral care benefit, the first oral care benefit being different than the second oral care benefit;
  - b) selecting from a plurality of types of tooth cleaning elements, a first type of tooth cleaning element that provides the first oral care benefit and a second type of tooth cleaning element that provides the second oral care benefit;
  - c) mounting a first plurality of tooth cleaning elements to a head portion of a first toothbrush, the first plurality of tooth cleaning elements comprising at least one of the first type of tooth cleaning element;
  - d) mounting a second plurality of tooth cleaning elements to a head portion of a second toothbrush, the second plurality of tooth cleaning elements comprising at least one of the second type of tooth cleaning element;
  - e) forming a first oral care kit comprising the first oral care material and the first toothbrush; and
  - f) forming a second oral kit comprising the second oral care material and the second toothbrush.
2. The method according to claim 1 further comprising: wherein step e) comprises:
  - e-1) providing the first oral care material into a reservoir of a first dispenser;
  - e-2) detachably coupling the first dispenser to the first toothbrush to form a first oral care system; and
  - e-3) packaging the first oral care system in a first package to form the first oral care kit; and
 wherein step f) comprises:
  - f-1) providing the second oral care material into a reservoir of a second dispenser;

- f-2) detachably coupling the second dispenser to the second toothbrush to form a second oral care system; and
- f-3) packaging the second oral care system in a second package to form the second oral care kit.
- 3.** The method according to claim **1** further comprising: wherein step e) comprises:
- e-1) providing the first oral care material into a reservoir of a first dispenser; and
- e-3) packaging the first dispenser and the first toothbrush in a first package to form the first oral care kit; and wherein step f) comprises:
- f-1) providing the second oral care material into a reservoir of a second dispenser; and
- f-3) packaging the second dispenser and the second toothbrush in a second package to form the second oral care kit.
- 4.** The method according to claim **1** further comprising: wherein step c) comprises:
- c-1) forming a first cleaning element assembly comprising a first head plate having a plurality of first openings, the first plurality of tooth cleaning elements extending through the plurality of first openings and comprising first portions extending from a front surface of the first head plate and anchor portions adjacent the rear surface of the first head plate, the anchor portions of the first plurality of tooth cleaning elements melted together to form a first melt matte;
- c-2) positioning the first head plate of the first cleaning element assembly into a first basin of the head portion of the first toothbrush; and
- c-3) attaching the first head plate of the first cleaning element assembly to the head portion of the first toothbrush; and
- wherein step d) comprises:
- d-1) forming a second cleaning element assembly comprising a second head plate having a plurality of second openings, the second plurality of tooth cleaning elements extending through the plurality of second openings and comprising first portions extending from a front surface of the second head plate and anchor portions adjacent the rear surface of the second head plate, the anchor portions of the second plurality of tooth cleaning elements melted together to form a second melt matte;
- d-2) positioning the second head plate of the second cleaning element assembly into a second basin of the head portion of the second toothbrush; and
- d-3) attaching the second head plate of the second cleaning element assembly to the head portion of the second toothbrush.
- 5.** The method according to claim **1** wherein each of the first and second oral care benefits are selected from the group consisting of tooth whitening, anti-bacterial, tooth anti-sensitivity, and oral malodor treatment.
- 6.** The method according to claim **1** wherein each of the first and second types of tooth cleaning elements is selected from a group consisting of a spiral bristle, a tapered bristle, an elastomeric tooth cleaning element, a charcoal bristle, a bristle comprising an anti-bacterial additive, and an end-rounded bristle having a diameter of 5 mils or less.
- 7.** The method according to claim **1** wherein the first oral care material is a tooth whitening agent and the first type of tooth cleaning element is a spiral bristle.
- 8.** The method according to claim **1** wherein the second oral care material is a tooth anti-sensitivity agent and the second type of tooth cleaning element is a tapered bristle or an end-rounded bristle having a diameter of 5 mils or less.
- 9.** The method according to claim **1** wherein:
- if the first oral care material is a tooth whitening agent, the first type of tooth cleaning element is a spiral bristle or an elastomeric tooth cleaning element;
- if the first oral care material is an anti-sensitivity agent, the first type of tooth cleaning element is a tapered bristle or an end-rounded bristle having a diameter of 5 mils or less;
- if the first oral care material is a breath freshening agent, the first type of tooth cleaning element is a charcoal bristle; and
- if the first oral care material is an anti-bacterial agent, the first type of tooth cleaning element is a bristle containing an anti-bacterial additive.
- 10.** A method of forming a product array of a plurality of oral care kits, the method comprising:
- a) providing a plurality of toothbrushes, each of the plurality of toothbrushes comprising a head portion and a reservoir;
- b) selecting from a plurality of oral care materials, a first oral care material that provides a first oral care benefit and a second oral care material that provides a second oral care benefit, the first oral care benefit being different than the second oral care benefit;
- c) selecting from a plurality of cleaning element assemblies, a first cleaning element assembly comprising a first type of tooth cleaning element that provides the first oral care benefit and a second cleaning element assembly comprising a second type of tooth cleaning element that provides the second oral care benefit;
- d) coupling the first cleaning element assembly to the head portion of a first toothbrush of the plurality of toothbrushes and filling the reservoir of the first toothbrush with the first oral care material; and
- e) coupling the second cleaning element assembly to the head portion of a second toothbrush of the plurality of toothbrushes and filling the reservoir of the second toothbrush with the second oral care material.
- 11.** The method according to claim **10** wherein each of the plurality of toothbrushes are structurally identical.
- 12.** A product array comprising:
- a first oral kit comprising:
- a first oral care material that provides a first oral care benefit;
- a first toothbrush comprising a first type of tooth cleaning element that provides the first oral care benefit; and
- a first package containing the first oral care material and the first toothbrush; and
- a second oral care kit comprising:
- a second oral care material that provides a second oral care benefit, the first oral care benefit being different than the second oral care benefit;
- a second toothbrush comprising a second type of tooth cleaning element that provides the second oral care benefit; and
- a second package containing the second oral care material and the second toothbrush.
- 13.** The product array according to claim **12** further comprising:

the first oral care kit comprising a first dispenser having a reservoir containing the first oral care material, the first package containing the first dispenser; and the second oral care kit comprising a second dispenser having a reservoir containing the second oral care material, the second package containing the second dispenser.

**14.** The product array according to claim **13** wherein the first dispenser is configured for detachable coupling to the first toothbrush and the second dispenser is configured for detachable coupling to the second toothbrush.

**15.** The product array according to claim **12** further comprising:

a first basin in a head portion of the first toothbrush;  
 a first cleaning element assembly comprising a first head plate having a plurality of first openings, a first plurality of cleaning elements extending through the plurality of first openings and comprising first portions extending from a front surface of the first head plate and anchor portions adjacent a rear surface of the first head plate, the anchor portion of the first plurality of tooth cleaning elements melted together to form a first melt matte, the first plurality of cleaning elements comprising the first type of tooth cleaning element;

the first head plate of the first cleaning element assembly positioned in the first basin of the head portion of the first toothbrush, the first head plate of the first cleaning element assembly attached to the head portion of the first toothbrush;

a second basin in a head portion of the second toothbrush;  
 a second cleaning element assembly comprising a second head plate having a plurality of second openings, a second plurality of cleaning elements extending through the plurality of second openings and comprising first portions extending from a front surface of the second head plate and anchor portions adjacent a rear surface of the second head plate, the anchor portion of the second plurality of tooth cleaning elements melted together to form a second melt matte, the second plurality of cleaning elements comprising the second type of tooth cleaning element; and

the second head plate of the second cleaning element assembly positioned in the second basin of the head portion of the second toothbrush, the second head plate of the second cleaning element assembly attached to the head portion of the second toothbrush.

**16.** The product array according to claim **12** wherein the first and second toothbrushes are structurally identical.

**17.** The product array according to claim **12** wherein each of the first and second oral care benefits are selected from the group consisting of tooth whitening, anti-bacterial, tooth anti-sensitivity, and oral malodor treatment.

**18.** The product array according to claim **12** wherein each of the first and second types of tooth cleaning elements is selected from a group consisting of a spiral bristle, a tapered bristle, an elastomeric tooth cleaning element, a charcoal bristle, a bristle comprising an anti-bacterial additive, and an end-rounded bristle having a diameter of 5 mils or less.

**19.** The product array according to claim **12** wherein the first oral care material is a tooth whitening agent and the first type of tooth cleaning element is a spiral bristle.

**20.** The product array according to claim **12** wherein the second oral care material is a tooth anti-sensitivity agent and the second type of tooth cleaning element is a tapered bristle or an end-rounded bristle having a diameter of 5 mils or less.

**21.** The product array according to claim **12** wherein:

if the first oral care material is a tooth whitening agent, the first type of tooth cleaning element is a spiral bristle or an elastomeric tooth cleaning element;

if the first oral care material is an anti-sensitivity agent, the first type of tooth cleaning element is a tapered bristle or an end-rounded bristle having a diameter of 5 mils or less;

if the first oral care material is a breath freshening agent, the first type of tooth cleaning element is a charcoal bristle; and

if the first oral care material is an anti-bacterial agent, the first type of tooth cleaning element is a bristle containing an anti-bacterial additive.

\* \* \* \* \*