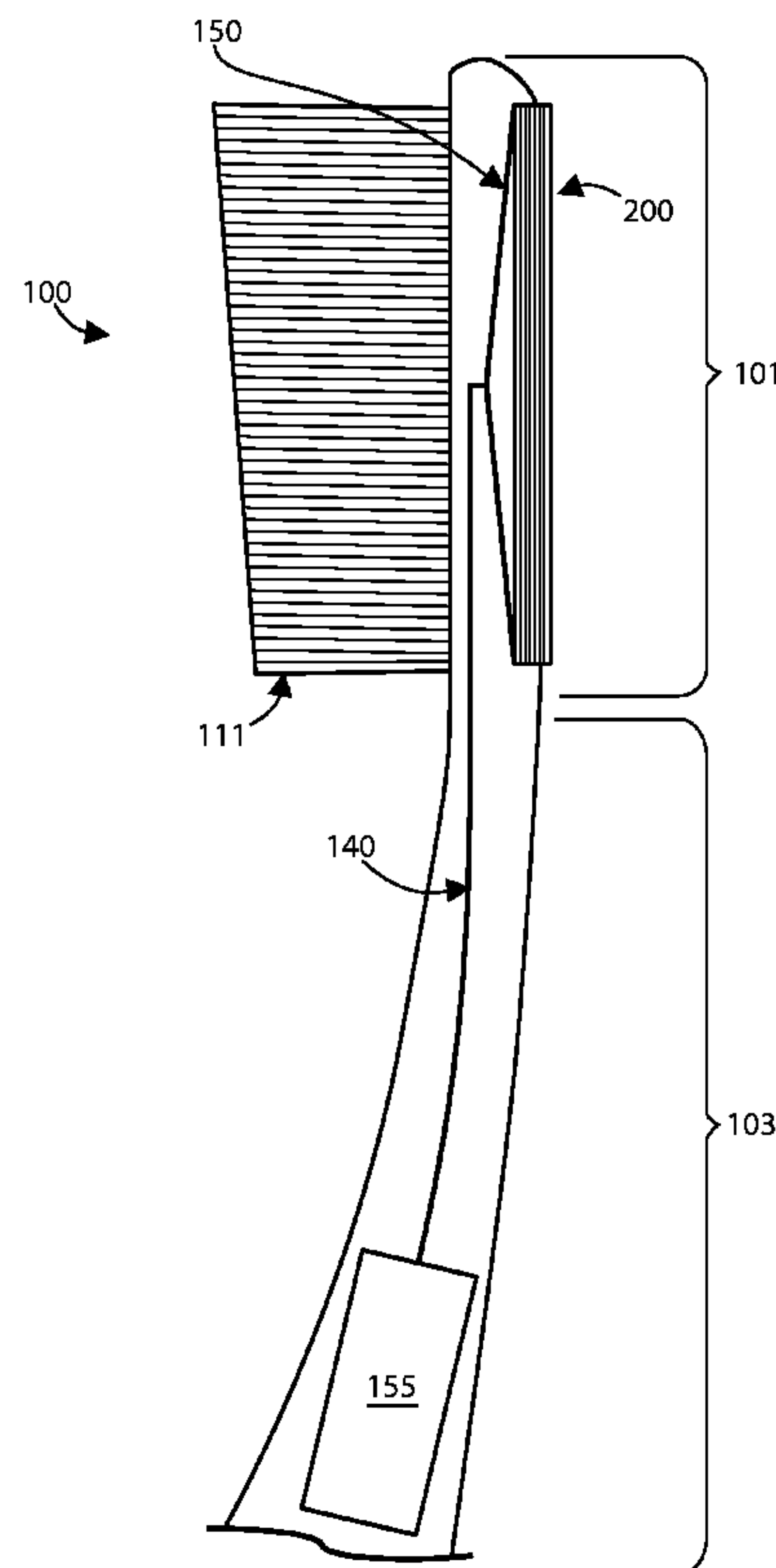




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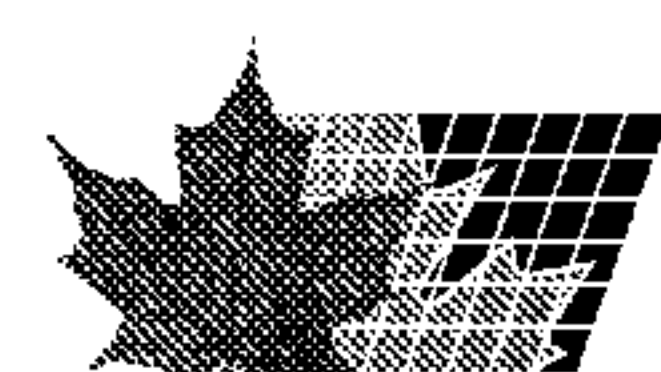
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(54) **Titre : ACCESSOIRE DE SOINS ORAUX COMPORTANT UN SYSTEME DE COLLECTE DE LIQUIDE**  
(54) **Title: ORAL CARE IMPLEMENT HAVING A LIQUID COLLECTION SYSTEM**



(57) **Abbrégé/Abstract:**

An oral care implement includes a collection system for oral fluids. Some embodiments of the implement may include an oral care region having a wearable oral member having a thickness that is reduced during use, a reservoir for retaining an oral fluid, a receiver coupled to the oral member for receiving an oral fluid, and a fluid pathway in communication with the receiver to provide the oral fluid to the reservoir.



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## (54) Title: ORAL CARE IMPLEMENT HAVING A LIQUID COLLECTION SYSTEM

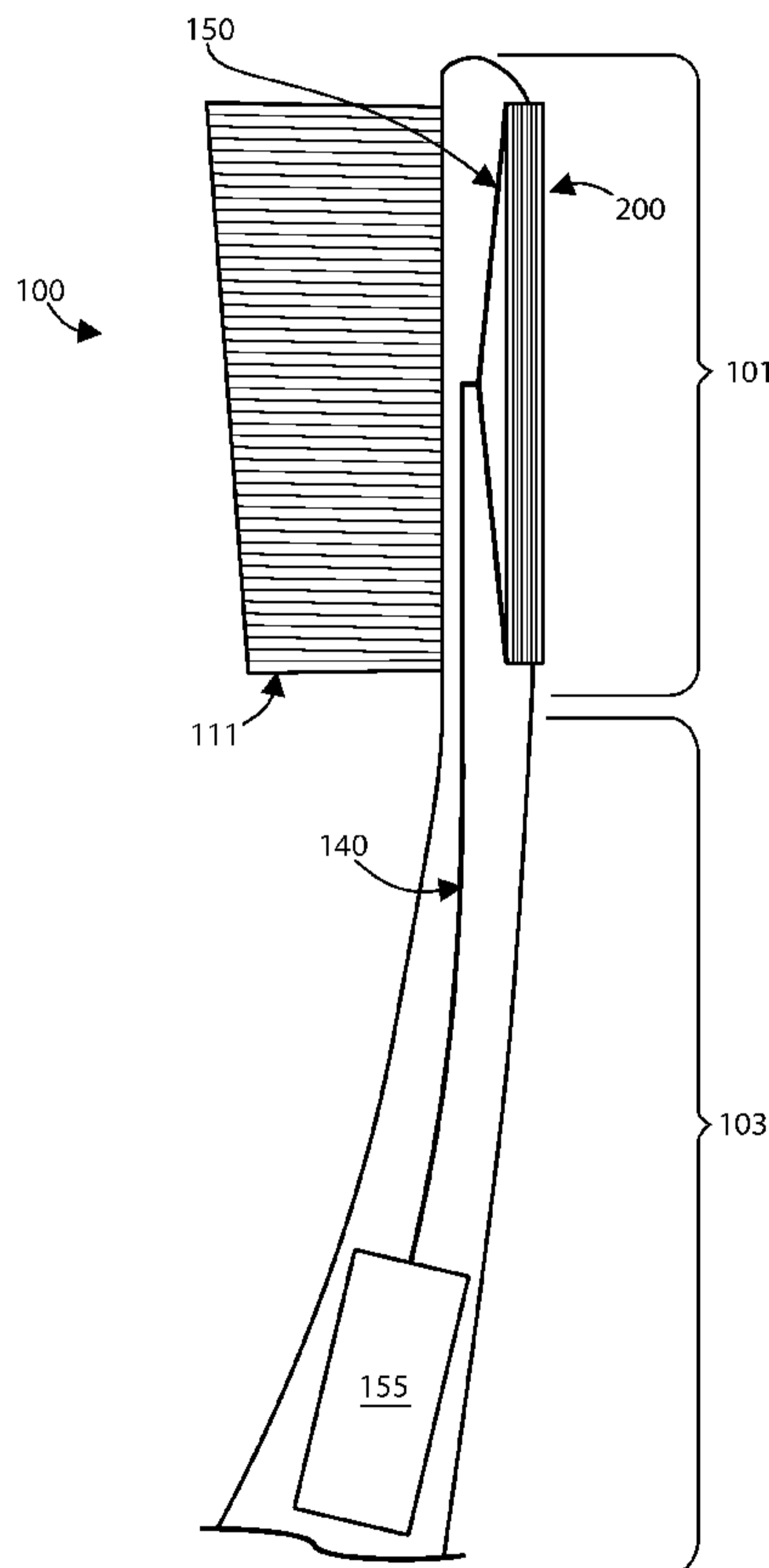


FIG. 3

(57) Abstract: An oral care implement includes a collection system for oral fluids. Some embodiments of the implement may include an oral care region having a wearable oral member having a thickness that is reduced during use, a reservoir for retaining an oral fluid, a receiver coupled to the oral member for receiving an oral fluid, and a fluid pathway in communication with the receiver to provide the oral fluid to the reservoir.

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## ORAL CARE IMPLEMENT HAVING A LIQUID COLLECTION SYSTEM

## BACKGROUND OF THE INVENTION

[01] The present invention pertains to an oral care implement, in particular, to a toothbrush with a liquid collection system. Tooth brushing is part of a daily oral hygiene activity. Proper dental care involves regular flossing, brushing and dental checkups. Dentists generally recommend that an individual brush his or her teeth for a minimum interval per cleaning, such as two minutes. Despite such recommendations, many individuals, especially young children, do not regularly brush their teeth for the recommended minimum interval. Such habits often can be attributed to the individual regarding tooth brushing as a mundane duty with few pleasurable aspects. Dental checkups to a dentist office are typically the only feedback a person receives on their dental cleaning efforts. There is unfortunately plenty of time in between checkups for poor dental habits to cause problems. For example, gingivitis, periodontal disease, and a host of other problems can be magnified if dental cleaning habits are not rectified promptly.

## BRIEF SUMMARY OF THE INVENTION

- [02] The present invention pertains to an oral care implement having a collection system of oral fluids.
- [03] In one aspect, an oral care implement includes an oral care region having an oral member having a thickness that is reduced or shortened during use; a reservoir for retaining an oral fluid; a receiver fluidly coupled to the oral member for receiving an oral fluid; and a fluid pathway in communication with the receiver to provide the oral fluid to the reservoir. In one possible embodiment, the oral member may be made of a conventional hydrogel material that may swell during use.
- [04] In another aspect, an oral care implement includes a reservoir for retaining an oral fluid; and a multilayer collection member including a layer that wears

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away during use so as to expose an indicium layer that indicates when the reservoir should be provided for analysis of the collected oral fluid.

5 [05] In yet another aspect, an oral care implement has a head containing tooth cleaning elements, a reservoir for storing an oral fluid. A capillary channel constructed from a fibrous material, ceramic, porous plastic, or combination thereof extends through at least a portion of the implement to receive the oral fluid from one or more inlets.

10 [05a] In yet another aspect, the invention relates to an oral care implement, comprising: an oral care region having an oral member with a thickness which is reduced during oral use; a plurality of tooth cleaning elements that are disposed opposing the oral member; a receiver coupled to the oral member for receiving an oral fluid; a fluid pathway in communication with the receiver; and a reservoir in communication with the fluid pathway for retaining an oral fluid, wherein the oral member comprises a first layer and a second layer that is soluble.

15 [05b] In yet another aspect, the invention relates to an oral care implement, comprising: a collection member for collecting an oral fluid; tooth cleaning projections opposing the collection member; a reservoir for storing the oral fluid; a fluid pathway fluidly connecting the collection member with the reservoir to provide the oral fluid to the reservoir; at least one indicia that provides an indication when a predetermined amount of oral fluid is stored in the reservoir; and a water-soluble layer positioned above the indicia, wherein the water-soluble layer covers the indicia.

20 [05c] In yet another aspect, the invention relates to an oral care implement, comprising: an oral care region having an oral member with a thickness which is reduced during oral use; a receiver coupled to the oral member for receiving an oral fluid; a fluid pathway in communication with the receiver; a reservoir in communication with the fluid pathway for retaining an oral fluid; a plurality of tissue cleaning projections extending from the oral member for engaging oral tissue; and tooth cleaning elements are disposed opposing the tissue cleaning projections; wherein the oral member comprises a plurality of layers, at least one layer includes the plurality of tissue cleaning projections extending therefrom for engaging

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oral tissue, and a layer of the oral member includes a testing indicator that identifies when the oral care implement is ready for oral fluid testing.

[05d] In yet another aspect, the invention relates to an oral care implement, comprising: a collection member for collecting an oral fluid; a reservoir for storing the oral fluid; a fluid  
5 pathway fluidly connecting the collection member with the reservoir to provide the oral fluid to the reservoir; at least one indicia that provides an indication when a predetermined amount of oral fluid is stored in the reservoir; a plurality of tissue cleaning projections extending from the oral member for engaging oral tissue; and tooth cleaning elements are disposed opposing the tissue cleaning projections; wherein the collection member includes a layer positioned  
10 above the indicia that covers the indicia below.

[05e] In yet another aspect, the invention relates to an oral care implement, comprising: an oral care region having an oral member with a thickness which is reduced during oral use; a receiver coupled to the oral member for receiving an oral fluid; a fluid pathway in communication with the receiver; a reservoir in communication with the fluid pathway for  
15 retaining an oral fluid; and the oral member comprises a first layer, a second, soluble layer that erodes away to expose said first layer, and indicia that indicates when the reservoir should be provided for testing.

[05f] In yet another aspect, the invention relates to an oral care implement, comprising: a collection member for collecting an oral fluid; a reservoir for storing the oral fluid; a fluid  
20 pathway fluidly connecting the collection member with the reservoir to provide the oral fluid to the reservoir; at least one indicia that provides an indication when a predetermined amount of oral fluid is stored in the reservoir; and the layer is comprised of a material that gradually wears or dissolves away during use to expose the indicia below the layer.

[05g] In still another aspect, the invention relates to a toothbrush comprising: a body  
25 comprising a handle and a head; a plurality of tooth cleaning elements extending from the head; a collecting member coupled to the body, the collecting member comprising an inner water-insoluble porous material and an outer water-soluble material, the water insoluble porous material being positioned between the water-soluble material and a front of the head; a

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reservoir in the body; and a fluid pathway in the body, the fluid pathway in fluid communication with the water-insoluble porous material and the reservoir.

[05h] In still another aspect, the invention relates to a toothbrush comprising: a handle; a head; a plurality of tooth cleaning elements extending from the head; a collecting member  
5 comprising an inner water-insoluble porous material and an outer water-soluble material, the water insoluble porous material being positioned between the water-soluble material and a front of the head, the collecting member located on the head; a reservoir; and a fluid pathway fluidly coupling the collecting member and the reservoir.

[05i] In still another aspect, the invention relates to a toothbrush comprising: a body  
10 comprising a handle and a head; a plurality of tooth cleaning elements extending from the head; a collecting member coupled to the body, the collecting member comprising an inner porous material and an outer erodible or dissolvable material, the porous material being positioned between the erodible or dissolvable material and a front of the head; a reservoir in the body; and a fluid pathway in the body, the fluid pathway in fluid communication with the  
15 porous material and the reservoir.

**BRIEF DESCRIPTION OF THE DRAWINGS**

- [06]** The features, and advantages of the invention will be apparent from the following more detailed description of certain embodiments of the invention and as illustrated in the accompanying drawings in which:
- [07]** Figures 1 and 2 are schematic perspective front and rear views of an oral care implement, such as a toothbrush, according to one or more embodiments of the invention;
- [08]** Figure 3 is a schematic fragmentary cross-sectional illustration of a toothbrush construction according to an embodiment of the invention;
- [09]** Figure 4 is a schematic illustration of a top view of a toothbrush head construction according to an embodiment of the invention;
- [10]** Figure 5 is an enlarged schematic cross-sectional view of the toothbrush head construction shown in FIG. 4 taken along line 5-5;
- [11]** Figure 6 is a schematic illustration of a top view of a toothbrush construction when a wearable top layer exposes an underneath layer;
- [12]** Figure 7 is a schematic illustration of a top view of an alternative toothbrush construction when a wearable top layer exposes an underneath layer;
- [13]** Figure 8 is a schematic fragmentary cross-sectional illustration of an alternative toothbrush construction according to an embodiment of the invention; and
- [14]** Figure 9 is an enlarged schematic cross-section view of an alternative construction of the toothbrush head shown in Figure 5.

## DETAILED DESCRIPTION OF THE INVENTION

- [15] In the following description, the invention is discussed in terms of a toothbrush (e.g. a form of an oral care implement) but could be in the form of other personal care implements. Further, it is understood that other embodiments may be utilized and structural and functional modifications may be made without departing from the scope of the present invention.
- [16] Figures 1-2 illustrate an oral care implement, such as a toothbrush, generally designated with the reference numeral 100. The toothbrush 100 generally includes a head 101 and a handle 103.
- [17] The handle 103 is generally an elongated member dimensioned so that a user can readily grip and manipulate the toothbrush 100. The handle 103 may be formed of many different shapes, lengths and with a variety of constructions. In one construction, the handle 103 has a neck portion 105 positioned adjacent the head 101. The neck portion 105 may be a narrowed region on the handle 103 between head 101 and the part of the handle normally gripped by the user. Nevertheless, the neck portion 101 could be the region between the head 101 and the part of the handle normally gripped by the user. In another construction, the handle 103 is integrally formed with the head 101. While the head is normally widened relative to the neck of the handle, it could in some constructions simply be a continuous extension or narrowing of the handle. Other attachment configurations also are possible.
- [18] The head 101 may include an oral care region comprising one or more tooth cleaning elements 111. As used herein, the term "tooth cleaning elements" or "cleaning elements" includes any type of structure that is commonly used or is suitable for use in providing oral health benefits (e.g., tooth cleaning, tooth polishing, tooth whitening, massaging, stimulating, etc.) by making contact with portions of the teeth and gums. Such tooth cleaning elements include but are not limited to tufts of bristles that can be formed to have a number of different shapes and sizes and elastomeric cleaning members that can be

formed to have a number of different shapes and sizes, or a combination of both tufts of bristles and elastomeric cleaning members.

- [19] In one construction, tooth cleaning elements 111 are formed from a plurality of bristles. Referring to Figures 1 and 2, the tooth cleaning elements 111 are bristle regions having different shapes, however, it is understood that a number of different configurations of oral care implements may be utilized. The one or more tooth cleaning elements 111 may be attached to the head 101 by known methods, such as being fit within recesses formed in the head 101 along a front portion 107 of the toothbrush 100 (Figure 1).
- [20] Figure 3 schematically illustrates a toothbrush 100 having a collecting member 200 and a reservoir 155 provided for storing an oral fluid medium, such as saliva and/or a mixture of saliva and dentifrice. In various constructions, the reservoir 155 can be provided in the neck portion 105 of the toothbrush 100 or at the distal end of the toothbrush handle 103.
- [21] A fluid pathway 140, such as a capillary channel, generally extends in the longitudinal direction of the toothbrush 100 for delivering oral fluid to the reservoir 155 from at least one inlet 150. The channel 140 uses capillary action to draw liquid from the inlet 150 to the reservoir 155. The capillary channel 140 generally has a capillary structure. In one construction, the channel 140 is in the form of a porous material. Examples of porous materials include fibrous materials, ceramics, and porous plastics such as those available from Porex Technologies, Atlanta, Georgia. One example of a fibrous material is an acrylic material known as type number C10010, available from Teibow Hanbai Co., Ltd., Tokyo, Japan. A mixture of porous and/or fibrous materials may be provided which have a distribution of larger and smaller capillaries. The channel 140 can be formed from a number of small capillaries that are connected to one another, or as a larger single capillary tube.
- [22] It will be understood that the collected oral fluid (e.g. fluid sample) in the reservoir 155 can be analyzed for periodontal gum disease, gingivitis, plaque, halitosis (bad breath), or any other oral or general bodily disease or condition

that is amenable for detection via the oral cavity of a user. The health aspects analyzed by a laboratory may include aspects related to bad health (e.g., the presence of a disease, such as indicated by the presence of a pathogen or the presence or absence of another chemical) and/or aspects related to good health (e.g., the presence of certain desirable flavanoids indicative of the activity of a breath freshener). The aspects of good health and poor health may include, but are not limited to, aspects of good and bad oral health. Poor oral health aspects may include, for example, those aspects associated with oral diseases or with poor oral care practices recognized or otherwise identified by the American Dental Association. Likewise, good oral health aspects may include, for example, those aspects associated with the lack of such oral diseases, or with oral care practices accepted by the American Dental Association. In some embodiments, a separate reservoir 155 may be provided for collected saliva.

- [23] As illustrated in Figures 4 and 5, the collecting member 200 includes a first layer 210 of a water insoluble porous material, such as a resin. Examples of suitable materials of the first layer 210 may include fibrous materials, ceramics, and porous plastics such as those available from Porex Technologies, Atlanta, Georgia. The water insoluble material generally maintains the structure of the collecting member 200. The layer 210 of porous material can include a portion of the head 101. The collecting member 200 can be secured on or within at least one surface of the head 101 or in a basin cavity in the head 101.
- [24] A second layer 214 is positioned on the first layer 210. The second layer 214 is provided in wearable construction so that it can erode due to mechanical abrasion during use of the toothbrush 100 or it can be formed of a water-soluble material to dissolve in the oral cavity. In one construction, the second, outer layer 214 may include a water-soluble polymer (such as polyethylene oxide, polyethylene glycol, or polyvinyl alcohol). Nevertheless, other non-toxic polymer with a controllable water solubility can be used in the toothbrush. It is noted that the solubility of the polymer used in the outer

layer 214 should be low enough that it dissolves out slowly, over a period of many uses. In these constructions, the collection member 200 has a first thickness which is reduced or shortened during use to a second thickness smaller than the first thickness. In some embodiments, outer layer 214 may have the property of being porous to allow transmission of fluids in the oral cavity (e.g. saliva and/or water) to underlying first layer 210 for collection in reservoir 155 on a continuing basis during use. In other embodiments, outer layer 214 may be non-porous to allow collection of fluids in the oral cavity only once layer 214 wears or dissolves away. In still yet other embodiments, outer layer 214 may be both porous and wear or dissolve with use over time.

- [25] The two layers 210, 214 can be produced either by conventional manufacturing techniques, such injection molding or extrusion. Alternatively, an extrusion construction, one layer can be extruded and then the other layer can be thermoformed/compression molded or laminated onto the extruded layer.
- [26] In one construction when the collecting member 200 comes into contact with water, saliva or a chemical in the mouth, the outer layer 214 erodes and a region of the toothbrush 100 is exposed by the eroded portion of the outer layer 214. As the outer layer 214 erodes away with repeated use, it not only exposes layer 210, but in some embodiments it also exposes indicia 120 on underlying layer 220 that indicates when the toothbrush 100 has collected and stored a predetermined amount of oral fluid in reservoir 155 sufficient to conduct a laboratory analysis and hence should be returned or sent by the user to a laboratory for testing/evaluation of the stored oral fluid in reservoir 155. In some embodiments, the indicia 120 can be a visible color that attracts the user's attention to the layer 220 and signals or illustrates the amount of effective life remaining in the toothbrush 100 and/or tells the user when the toothbrush 100 is ready for testing. Alternatively, or in addition to color indication, the indicia 120 can be a message that tells the user the same. For example, as shown in Figures 6 and 7, the indicia 120, 120' can be

alphanumeric characters, such as without limitation “TEST” or “SEND FOR TEST”. Alternatively, the indicia 120 can be a graphical symbol or icon. The symbolic aspect is particularly advantageous for providing an oral care implement for use in multiple social geographic regions without the need to translate text into different languages. It will be appreciated that any suitable color, alphanumeric or graphic indicators, or combinations thereof may be used.

- [27] The collecting member 200 can also function as a wear indicator to clearly indicate to the user of the toothbrush to forward the toothbrush for health screening or testing of collected oral fluid. The member 200 can be located at strategic position about the head 101. The collecting member 100 will provide notice to the user when the toothbrush is ready. In an illustrative embodiment, as shown in FIG. 3, the collecting member 200 is shown in a prismatic shape and located on one surface on head 101 opposite the surface containing cleaning elements 111 which could channel the saliva and/or other collected oral fluid into inlet 150 more efficiently into fluid pathway 140. However, this illustrated shape and location is not limiting. The collecting member 200 can have any appropriate shape and be located on any suitable surface(s) on the toothbrush 100 that preferably can be viewed by the user and provide oral care benefits.
- [28] The inlet 150 can be configured as a non-woven pad, membrane or other structure that allows passage of the oral fluid. Examples of materials that can be used for the inlet include porous plastics and other porous materials, such as those described below with reference to the capillary channel 140. In one construction, the inlet 150 can be located on a surface of the head 101 generally opposite the surface that contains the tooth cleaning elements 111.
- [29] When the collection member 200 is provided for the toothbrush 100, the inlet 150 can be incorporated into the first layer 210. The second layer 214 can be provided in a wearable construction and enables gentle removal of microflora and other debris from the tongue and other soft tissue surfaces within the

mouth. The tongue, in particular, is prone to develop bacterial coatings that are known to harbor organisms and debris that can contribute to bad breath. This microflora can be found in the recesses between the papillae on most of the tongue's upper surface as well as along other soft tissue surfaces in the mouth. When engaged or otherwise pulled against a tongue surface, for example, tissue cleaning projections or elements 217 disposed on second layer 214 in some embodiments can provide for gentle engagement with the soft tissue while reaching downward into the recesses of adjacent papillae of the tongue. The projections can have a variety of shapes, such as frusto-conically shaped elements, and other shapes that taper to a narrow end and thereby resemble a cone. Alternatively, tissue cleaning elements 217 may have other shapes, such as linear ridges. In other possible constructions, the inlet 150 can be located within the field of the tooth cleaning elements 111.

- [30] In some embodiments as shown in FIG. 9, tissue cleaning elements 217 may extend completely through layers 214, 210 and connect to either tooth cleaning elements 111 and/or be formed as an integral part of the tooth cleaning elements, or alternatively tissue cleaning elements 217 may be anchored in the material near the front portion 107 of head 101 that supports tooth cleaning elements 111. These constructions may be beneficial where layer 214 is made of a material that is intended to wear or dissolve away with use over time to prevent tissue cleaning elements 217 from dislodging into the oral cavity of a user.
- [31] Optionally, a plurality of inlets may be provided on both the surface of the head 101 that contains the tooth cleaning elements as well as the opposite the surface of the head, e.g., for collecting the oral fluid at different areas of the oral cavity. The plural inlets 150 may be connected to a single fluid pathway channel 140 from opposite sides of head 101 that lead to reservoir 155.
- [32] The reservoir 155 may be formed from a suitable material and formed in a voided container construction. Alternatively, the reservoir 155 may include reticulated foam in the void space of the container, the foam may be

hydrophilic. Other examples of materials that can be used for the reservoir 155 include ceramics and porous plastics.

- [33] The capillary channel 140 can be press-fit into an opening in the handle 103 or, alternatively, the handle 103 can be overmolded around the capillary channel 140. In a multiple capillary construction, the capillary channel 140 generally provides a path by which air can enter the otherwise closed reservoir 155. The finer capillaries of channel 140 transfer fluid from the inlet 150. The larger capillaries allow air to enter the reservoir 155. In general, air can enter through at least the largest capillary in the channel.
- [34] In an alternative construction shown in Figure 8, the toothbrush 100 may comprise a brush section A and a removable reservoir section B that are joined to each other, e.g., by threaded engagement, snap-fitting, or the like. The reservoir section B can be disposable, refillable, and/or interchangeable with other reservoir sections B. Alternatively, the reservoir section B can be replaceable, e.g., by inserting a replaceable reservoir 155 cartridge into a recess in the toothbrush. The cartridge can be spring-loaded to stay in place after insertion, and/or can have a seal to prevent unwanted leakage of oral fluid. Alternatively, the reservoir 155 may be placed at a neck location of the toothbrush 100. In some possible embodiments, the fluid collection system described herein may be incorporated into an electric-powered toothbrush. In yet other embodiments of electric toothbrushes, the toothbrush handle and/or recharging base may incorporate diagnostic circuitry which could be triggered by markers present and detected in the oral fluids collected by toothbrush 100 (e.g. plug and play). Accordingly, the fluid collection system described herein is not limited in application to only manual toothbrushes.
- [35] It will be understood that while the invention has been described in conjunction with specific embodiments thereof, the foregoing description and examples are intended to illustrate, but not limit the scope of the invention. Other aspects, advantages and modifications will be apparent to those skilled in the art to which the invention pertains, and these aspects and modifications are within the scope of the invention and described and claimed herein.

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CLAIMS:

1. An oral care implement, comprising:
  - an oral care region having an oral member with a thickness which is reduced during oral use;
  - 5 a plurality of tooth cleaning elements that are disposed opposing the oral member;
  - a receiver coupled to the oral member for receiving an oral fluid;
  - a fluid pathway in communication with the receiver; and
  - a reservoir in communication with the fluid pathway for retaining an oral fluid,
  - 10 wherein the oral member comprises a first layer and a second layer that is soluble.
2. The oral care implement of claim 1, wherein the receiver comprises a non-woven pad or membrane.
3. The oral care implement of claim 1, wherein the reservoir comprises a replaceable cartridge.
- 15 4. The oral care implement of claim 1, further comprising a first section containing the oral care region and the fluid pathway, and a second section containing the reservoir, wherein the second section is releasably attached to the first section.
5. The oral care implement of claim 1, in which the oral member includes a plurality of tissue cleaning projections extending therefrom for engaging oral tissue.
- 20 6. The oral care implement of claim 1, wherein the fluid pathway includes a fibrous material, ceramic, porous plastic, or combination thereof, for providing capillary recovery of an oral fluid.

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7. The oral care implement of claim 1, wherein the second layer includes a plurality of tissue cleaning projections extending therefrom for engaging oral tissue.

8. The oral care implement of claim 7, wherein the first layer of the oral member includes a testing indicator that identifies when the oral care implement is ready for oral fluid  
5 testing.

9. The oral care implement of claim 1, wherein the oral member comprises indicia that indicates when the reservoir should be provided for testing.

10. The oral care implement of claim 1, wherein the receiver is disposed within or adjacent to the oral care region.

10 11. An oral care implement, comprising:

a collection member for collecting an oral fluid;

tooth cleaning projections opposing the collection member;

a reservoir for storing the oral fluid;

15 a fluid pathway fluidly connecting the collection member with the reservoir to provide the oral fluid to the reservoir;

at least one indicia that provides an indication when a predetermined amount of oral fluid is stored in the reservoir; and

a water-soluble layer positioned above the indicia, wherein the water-soluble layer covers the indicia.

20 12. The oral care implement of claim 11, wherein the reservoir comprises a replaceable cartridge.

13. The oral care implement of claim of 11, further comprising a receiver coupled to the collection member for receiving the oral fluid.

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14. The oral care implement of claim 13, further comprising a first section containing the oral care region and the fluid pathway, and a second section containing the reservoir, wherein the second section is releasably attached to the first section.

15. The oral care implement of claim 13, wherein the fluid pathway includes a  
5 fibrous material, ceramic, porous plastic, or combination thereof, for providing capillary recovery of an oral fluid.

16. The oral care implement of claim 11, in which the water-soluble layer includes a plurality of tissue cleaning projections extending therefrom for engaging oral tissue.

17. The oral care implement of claim 11, wherein water-soluble layer is comprised  
10 of a material that gradually wears or dissolves away during use to expose the indicia below the layer.

18. The oral care implement of claim 11, wherein the water-soluble layer is made of a water-soluble polymer.

19. The oral care implement of claim 11, wherein the indicia is selected from the  
15 group consisting of colors, alphanumeric characters, graphic symbols, and combinations thereof.

20. An oral care implement, comprising:

an oral care region having an oral member with a thickness which is reduced during oral use;

20 a receiver coupled to the oral member for receiving an oral fluid;

a fluid pathway in communication with the receiver;

a reservoir in communication with the fluid pathway for retaining an oral fluid;

a plurality of tissue cleaning projections extending from the oral member for engaging oral tissue; and

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tooth cleaning elements are disposed opposing the tissue cleaning projections;

wherein the oral member comprises a plurality of layers, at least one layer includes the plurality of tissue cleaning projections extending therefrom for engaging oral tissue, and a layer of the oral member includes a testing indicator that identifies when the oral  
 5 care implement is ready for oral fluid testing.

21. The oral care implement of claim 20, wherein the receiver comprises a non-woven pad or membrane.

22. The oral care implement of claim 20, wherein the reservoir comprises a replaceable cartridge.

10 23. The oral care implement of claim 20, further comprising a first section containing the oral care region and the fluid pathway, and a second section containing the reservoir, wherein the second section is releasably attached to the first section.

24. The oral care implement of claim 20, wherein the fluid pathway includes a fibrous material, ceramic, porous plastic, or combination thereof, for providing capillary  
 15 recovery of an oral fluid.

25. The oral care implement of claim 20, wherein the oral member comprises a first layer, a second, soluble layer that erodes away to expose said first layer, and indicia that indicates when the reservoir should be provided for testing.

26. An oral care implement, comprising:  
 20 a collection member for collecting an oral fluid;  
 a reservoir for storing the oral fluid;  
 a fluid pathway fluidly connecting the collection member with the reservoir to provide the oral fluid to the reservoir;

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at least one indicia that provides an indication when a predetermined amount of oral fluid is stored in the reservoir;

a plurality of tissue cleaning projections extending from the oral member for engaging oral tissue; and

5 tooth cleaning elements are disposed opposing the tissue cleaning projections;

wherein the collection member includes a layer positioned above the indicia that covers the indicia below.

27. The oral care implement of claim 26, wherein the reservoir comprises a replaceable cartridge.

10 28. The oral care implement of claim 26, further comprising a receiver coupled to the collection member for receiving the oral fluid.

29. The oral care implement of claim 28, further comprising a first section containing the oral care region and the fluid pathway, and a second section containing the reservoir, wherein the second section is releasably attached to the first section.

15 30. The oral care implement of claim 26, wherein the fluid pathway includes a fibrous material, ceramic, porous plastic, or combination thereof, for providing capillary recovery of an oral fluid.

31. The oral care implement of claim 20, wherein the layer is comprised of a material that gradually wears or dissolves away during use to expose the indicia below the  
20 layer.

32. The oral care implement of claim 20, wherein the layer is made of a water-soluble polymer.

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33. The oral care implement of claim 26, wherein the indicia is selected from the group consisting of colors, alphanumeric characters, graphic symbols, and combinations thereof.

34. The oral care implement of claim 26, wherein the implement is an electric  
5 toothbrush.

35. The oral care implement of claim 26, wherein the oral care implement comprises a neck and the reservoir is positioned in the neck.

36. An oral care implement, comprising:  
  
an oral care region having an oral member with a thickness which is reduced  
10 during oral use;  
  
a receiver coupled to the oral member for receiving an oral fluid;  
  
a fluid pathway in communication with the receiver;  
  
a reservoir in communication with the fluid pathway for retaining an oral fluid;  
  
and  
  
15 the oral member comprises a first layer, a second, soluble layer that erodes away to expose said first layer, and indicia that indicates when the reservoir should be provided for testing.

37. An oral care implement, comprising:  
  
a collection member for collecting an oral fluid;  
  
20 a reservoir for storing the oral fluid;  
  
a fluid pathway fluidly connecting the collection member with the reservoir to provide the oral fluid to the reservoir;

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at least one indicia that provides an indication when a predetermined amount of oral fluid is stored in the reservoir; and

the layer is comprised of a material that gradually wears or dissolves away during use to expose the indicia below the layer.

- 5 38. A toothbrush comprising:
  - a body comprising a handle and a head;
  - a plurality of tooth cleaning elements extending from the head;
  - a collecting member coupled to the body, the collecting member comprising an inner water-insoluble porous material and an outer water-soluble material, the water insoluble
  - 10 porous material being positioned between the water-soluble material and a front of the head;
  - a reservoir in the body; and
  - a fluid pathway in the body, the fluid pathway in fluid communication with the water-insoluble porous material and the reservoir.
39. The toothbrush of claim 38, wherein the water-insoluble porous material is in
- 15 the form of a non-woven pad or membrane.
40. The toothbrush of claim 38, wherein the reservoir comprises a replaceable cartridge.
41. The toothbrush of claim 38, wherein the fluid pathway includes a fibrous material, ceramic, porous plastic, or combination thereof.
- 20 42. The toothbrush of claim 38, wherein the water-soluble material is on the water-insoluble porous material.
43. The toothbrush of claim 42, wherein the water-insoluble porous material is in the form of a first layer and the water-soluble material is in the form of a second layer.

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44. The toothbrush of claim 38, wherein the collecting member is located on the head.

45. The toothbrush of claim 44, wherein the collecting member is located on a rear surface of the head, and the plurality of tooth cleaning elements extend from a front surface of  
5 the head.

46. The toothbrush of claim 38, wherein the collecting member comprises a plurality of tissue cleaning projections extending therefrom.

47. The toothbrush of claim 38, wherein the water-soluble material dissolves away during use of the toothbrush.

10 48. The toothbrush of claim 38, wherein the reservoir is located in a neck of the body, the neck located between the handle and the head.

49. The toothbrush of claim 38, wherein the fluid pathway includes a fibrous material, ceramic, porous plastic, or combination thereof, and wherein the fluid pathway comprises a distribution of larger and smaller capillaries.

15 50. The toothbrush of claim 38, wherein the collecting member is located in a basin cavity of the head.

51. A toothbrush comprising:

a handle;

a head;

20 a plurality of tooth cleaning elements extending from the head;

a collecting member comprising an inner water-insoluble porous material and an outer water-soluble material, the water insoluble porous material being positioned between the water-soluble material and a front of the head, the collecting member located on the head;

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a reservoir; and

a fluid pathway fluidly coupling the collecting member and the reservoir.

52. The toothbrush of claim 51, wherein the fluid pathway includes a fibrous material, ceramic, porous plastic, or combination thereof.

5 53. The toothbrush of claim 51, wherein the collecting member is located on the head.

54. The toothbrush of claim 53, wherein the collecting member is located on a rear surface of the head, and the plurality of tooth cleaning elements extend from a front surface of the head.

10 55. The toothbrush of claim 54, wherein the collecting member is located in a basin cavity of the head.

56. A toothbrush comprising:

a body comprising a handle and a head;

a plurality of tooth cleaning elements extending from the head;

15 a collecting member coupled to the body, the collecting member comprising an inner porous material and an outer erodible or dissolvable material, the porous material being positioned between the erodible or dissolvable material and a front of the head;

a reservoir in the body; and

20 a fluid pathway in the body, the fluid pathway in fluid communication with the porous material and the reservoir.

57. The toothbrush of claim 56, wherein the erodible or dissolvable material is exposed on a rear surface of the head.

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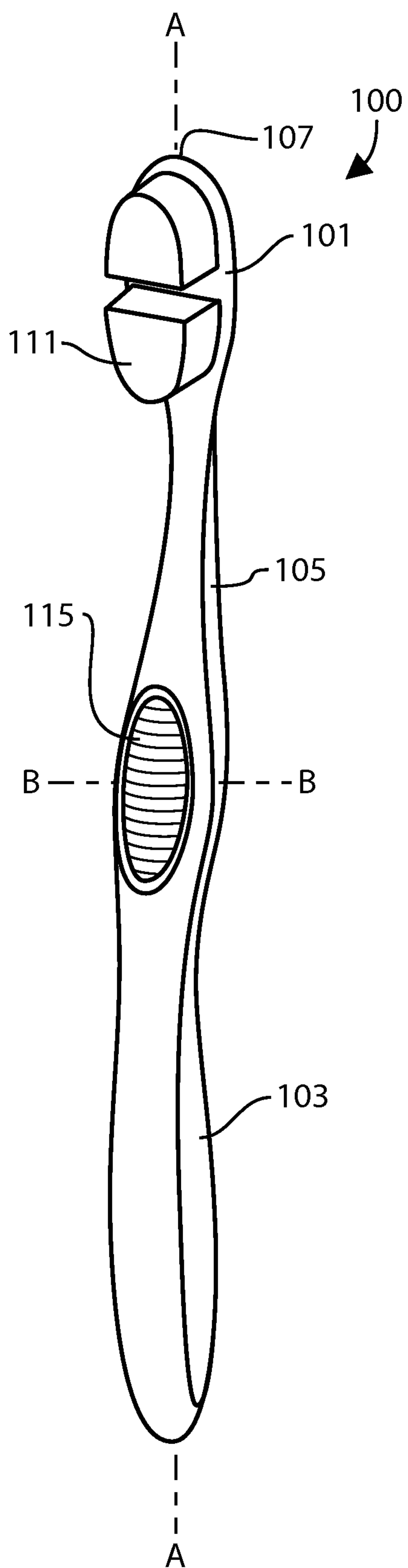


FIG. 1

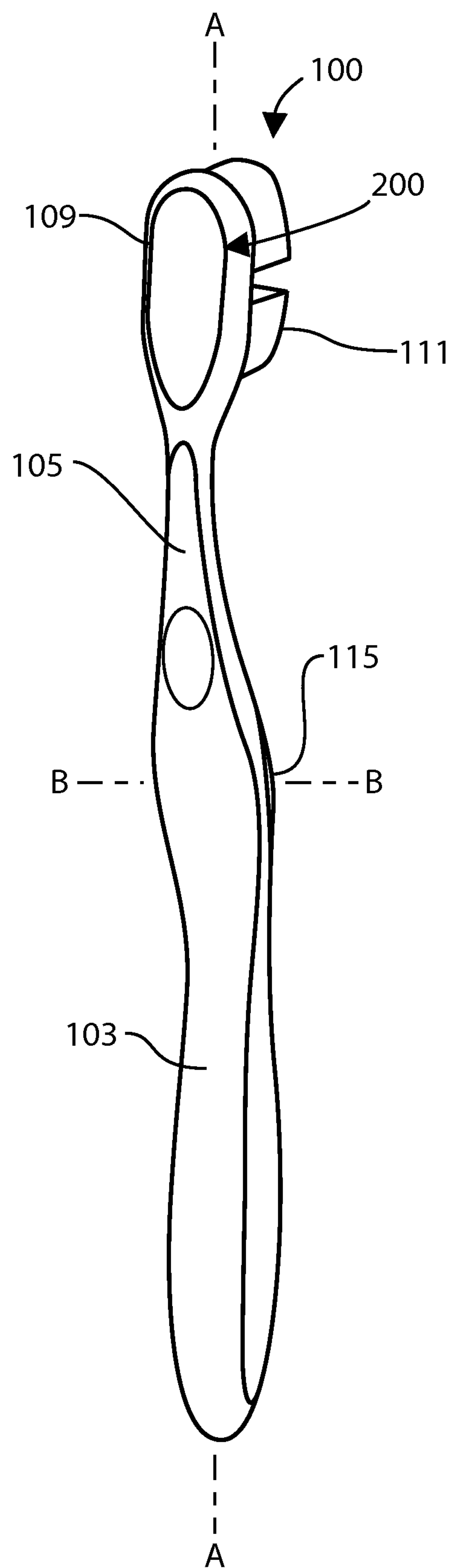


FIG. 2

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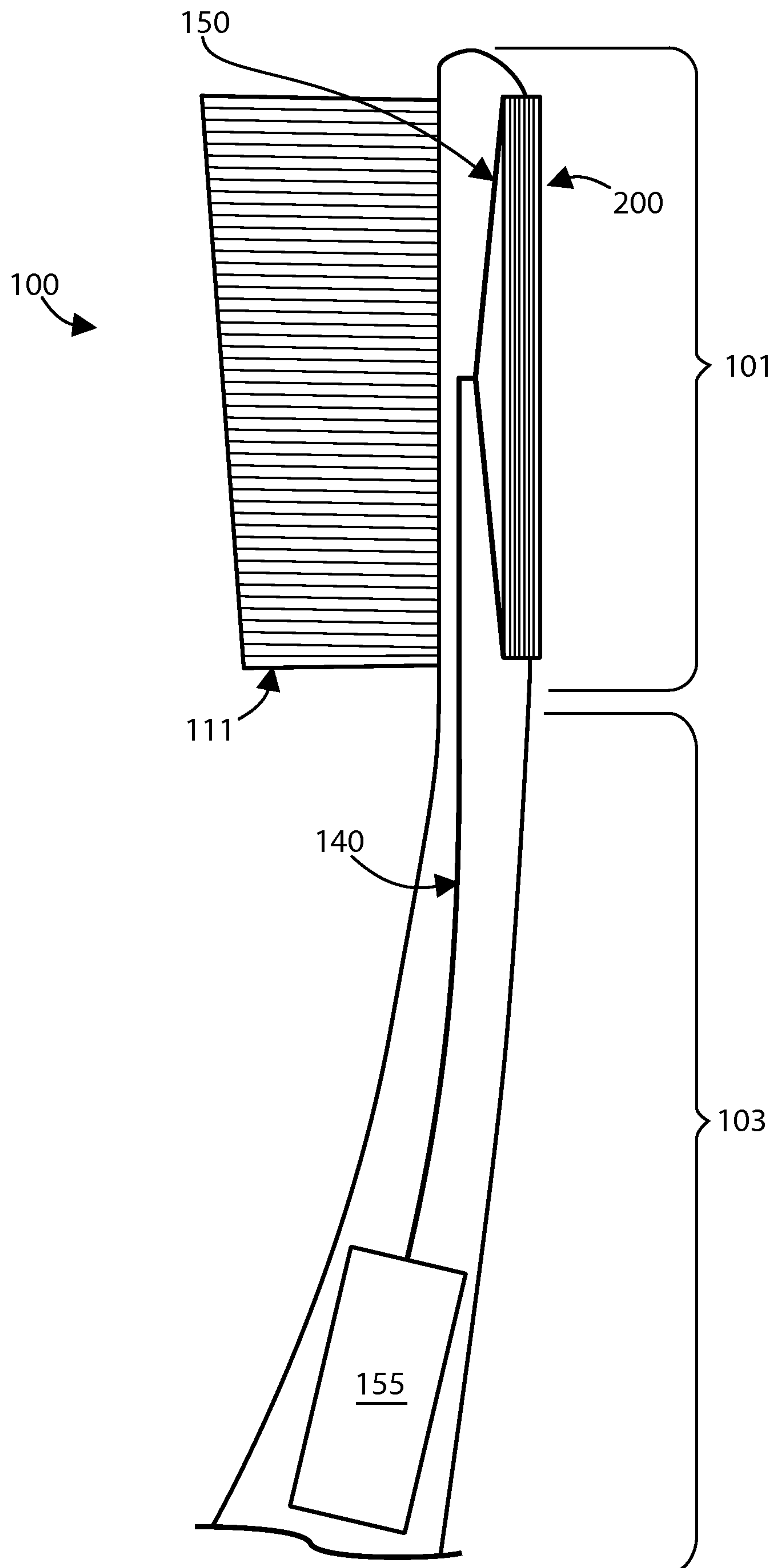


FIG. 3

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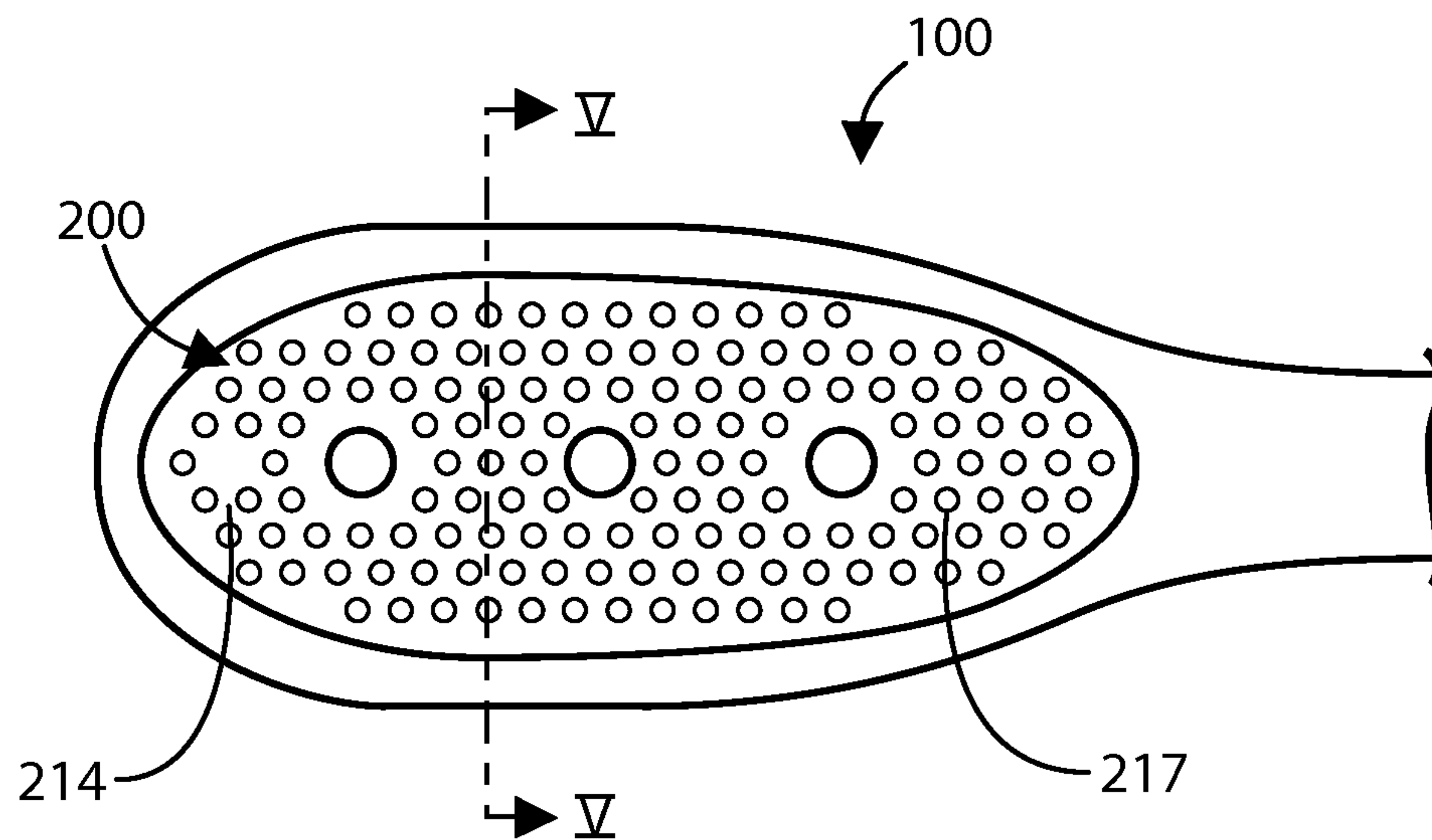


FIG. 4

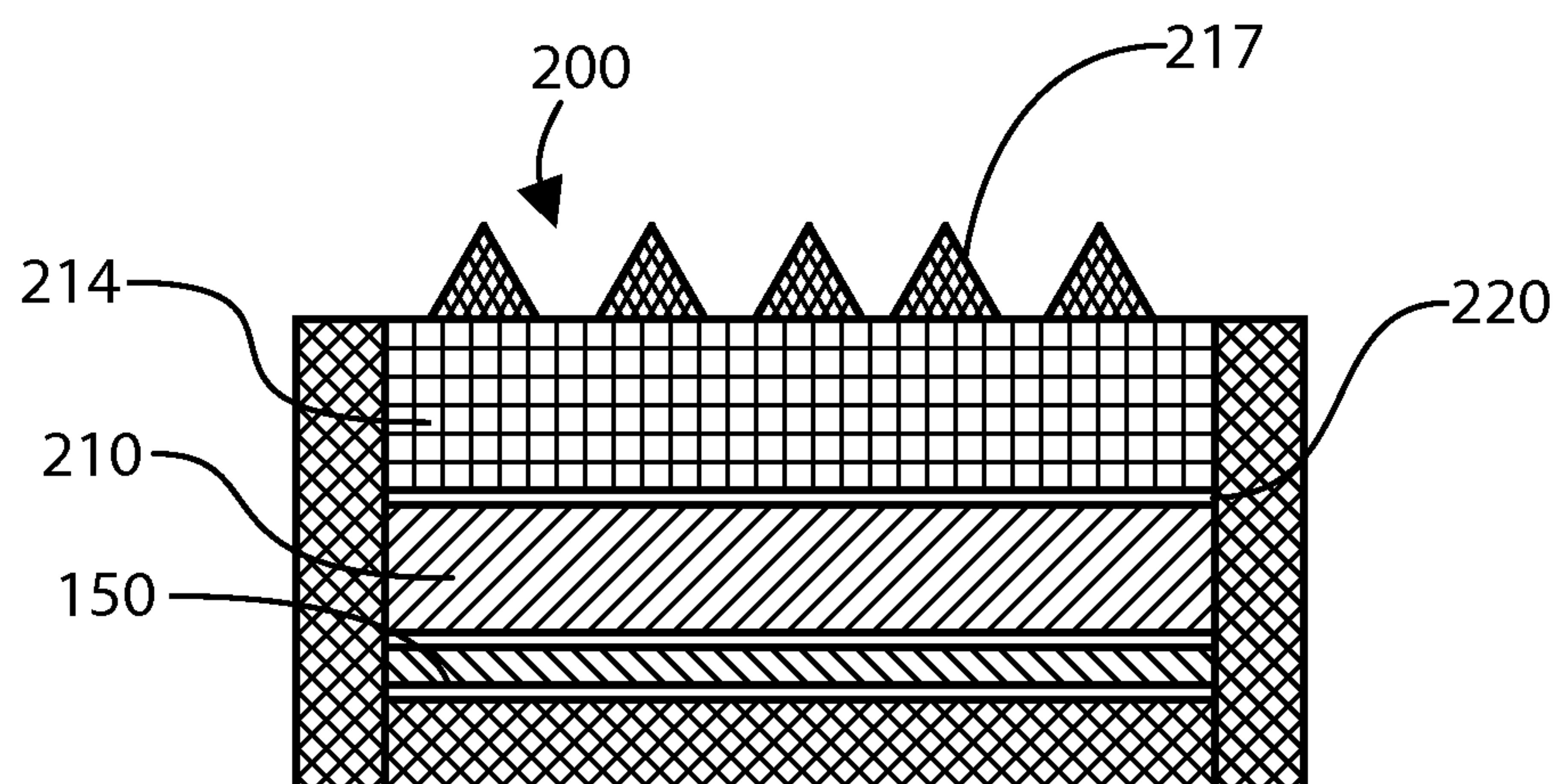


FIG. 5

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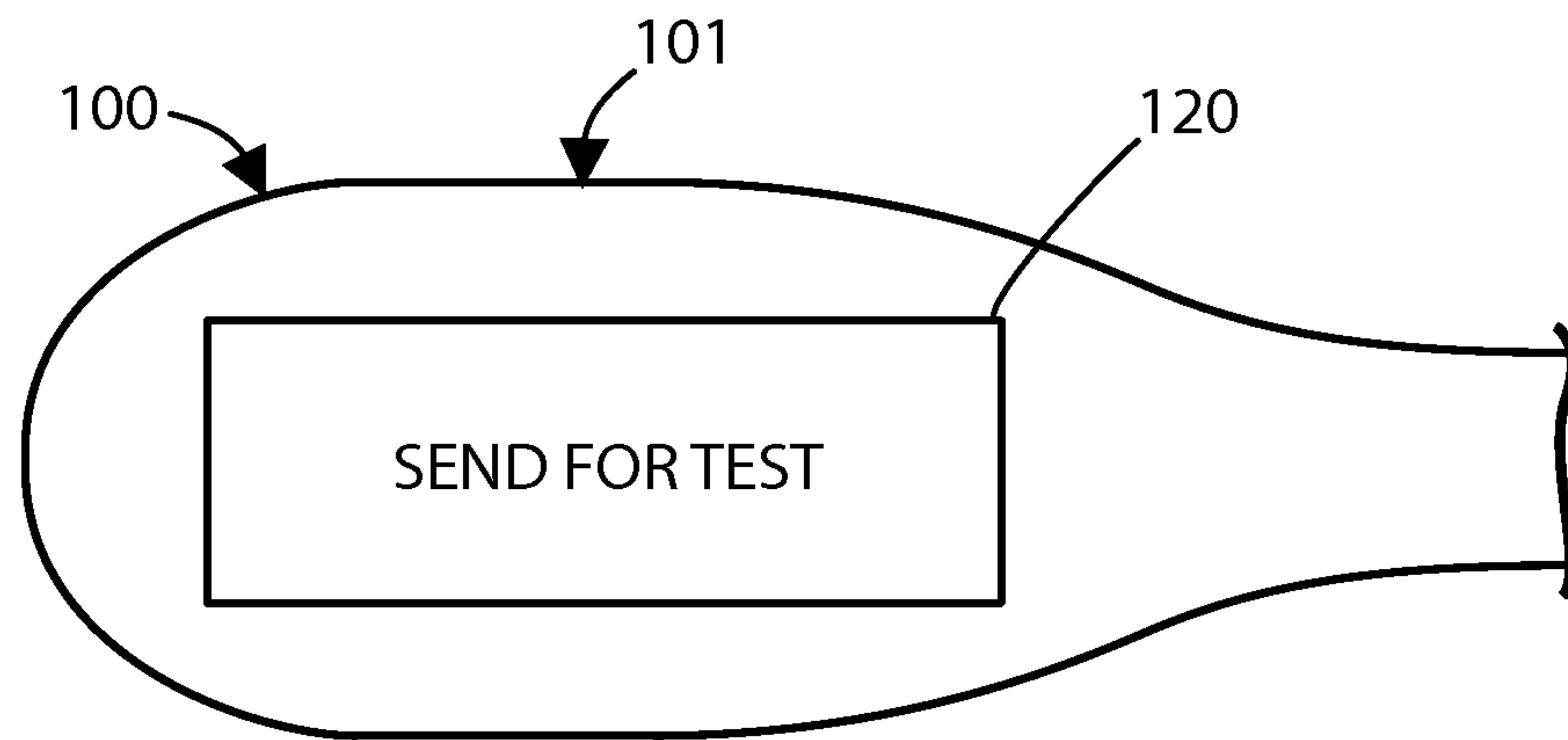


FIG. 6

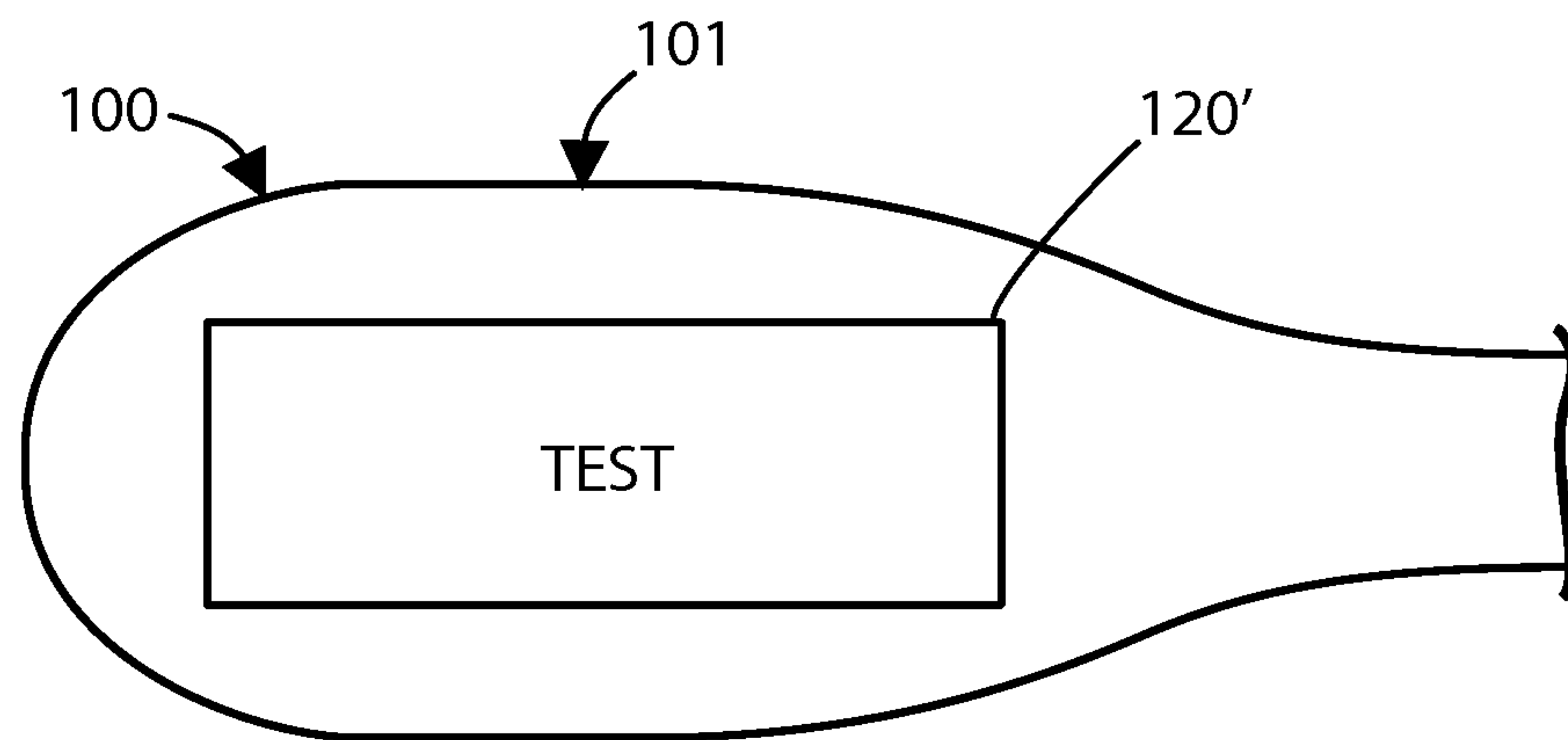


FIG. 7

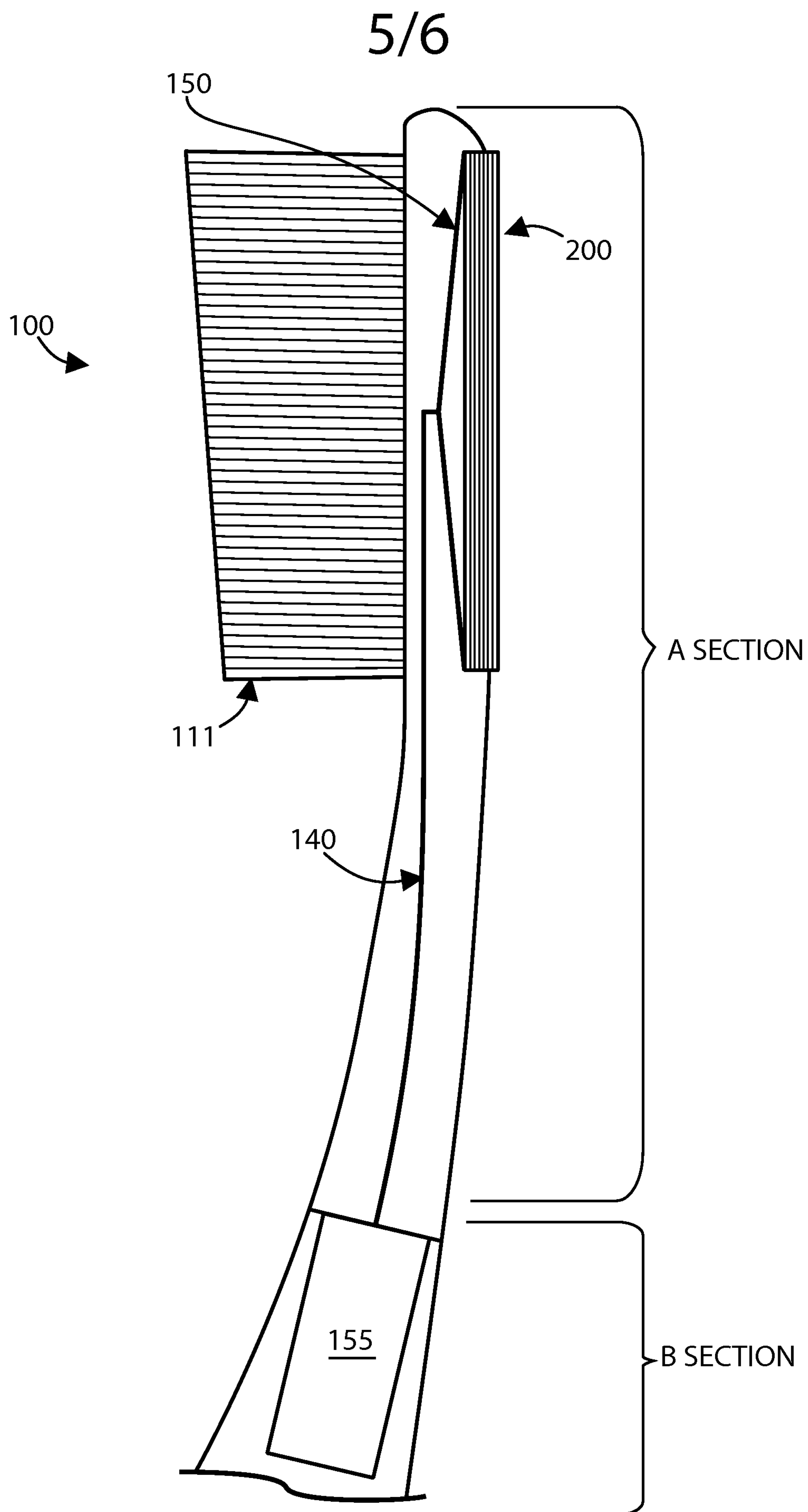


FIG. 8

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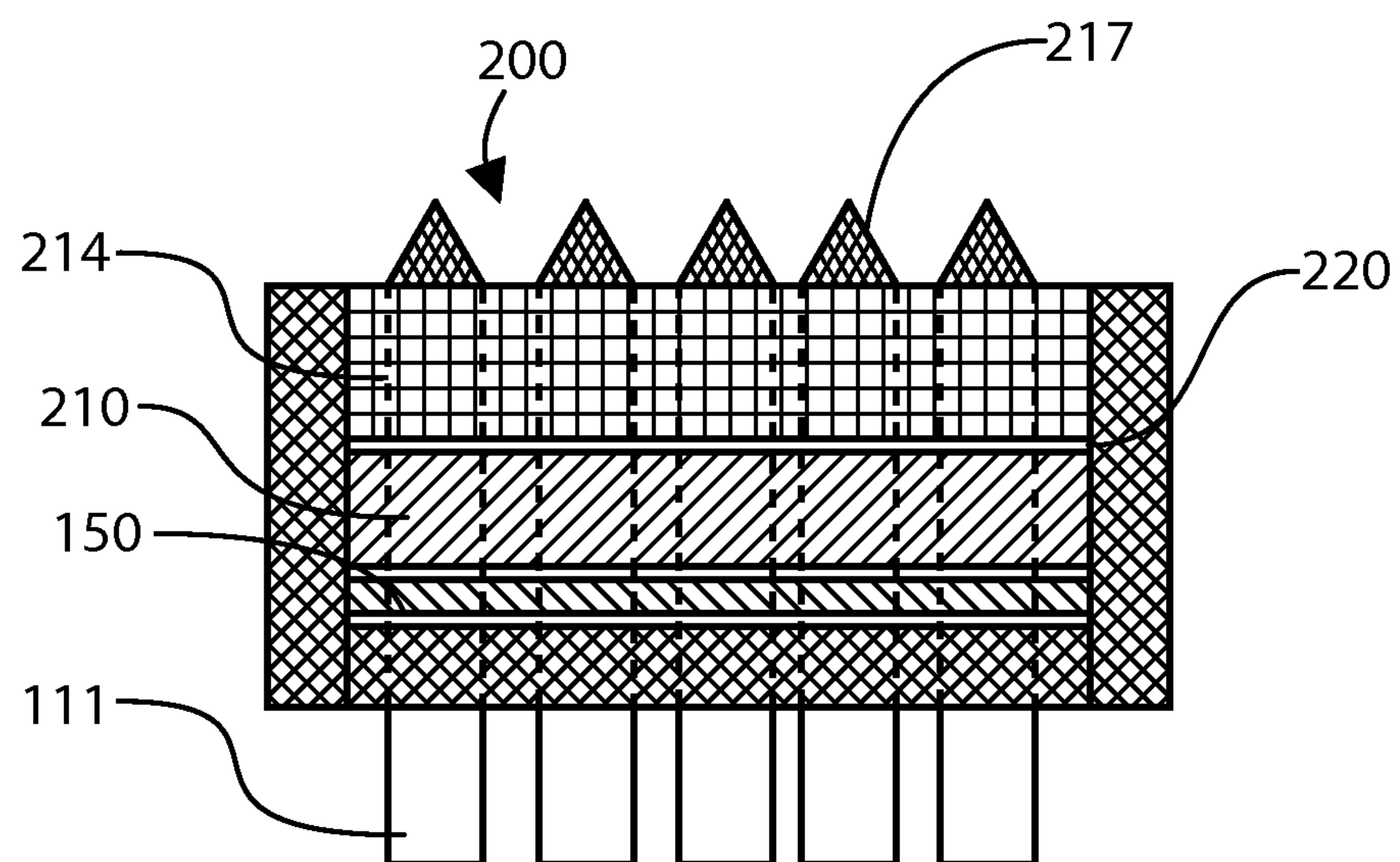


FIG. 9

