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(54) **TOOTH BRUSH WITH FOUR BRISTLE GROUPS**

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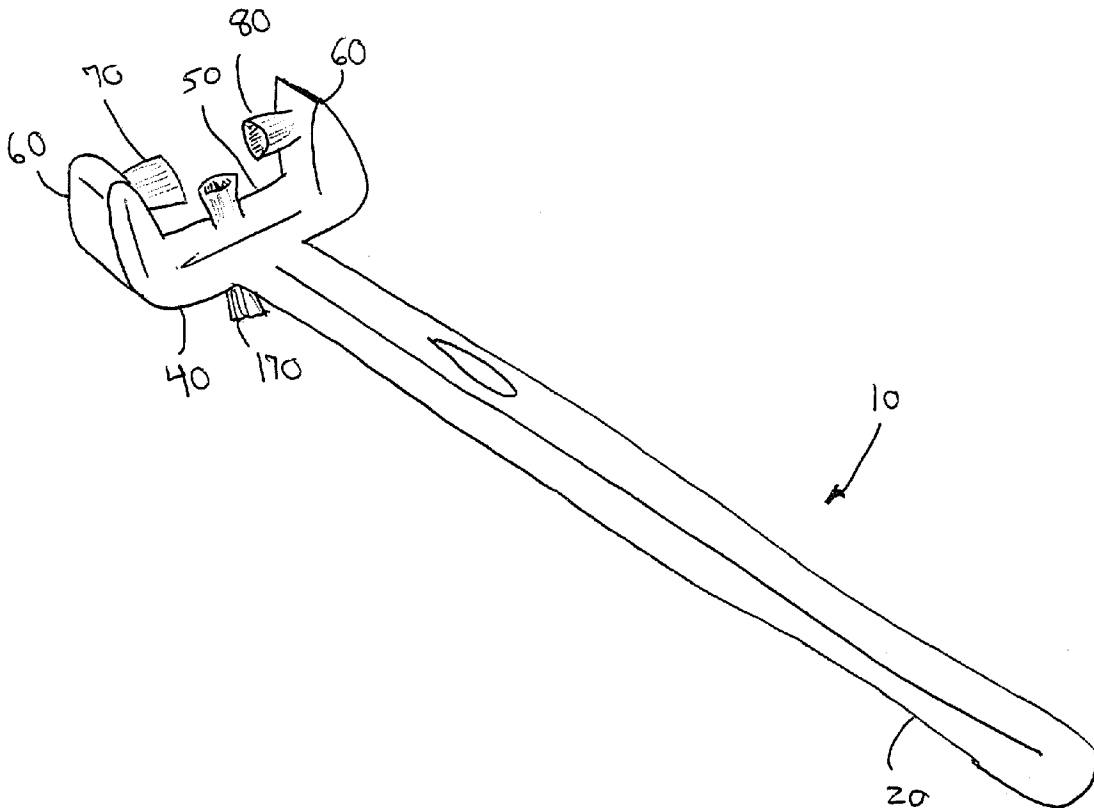
(60) **Provisional application No. 60/328,511, filed on Oct. 11, 2001. Provisional application No. 60/361,432, filed on Feb. 28, 2002.**

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(57) **ABSTRACT**

A toothbrush for use on humans and pets, comprising a toothbrush head with each end curved upward at 90 degree angles; said toothbrush head further comprising four sets of soft bristles. Three sets of bristles are attached to the front face of the brush head, with two sets positioned opposite each other on each upward curved end of the head and the third set of bristles positioned in the center, perpendicular to the other two sets, thereby providing coverage of the mesial, distal and occlusal surfaces of the teeth simultaneously. The fourth set of bristles is attached to the back side of the toothbrush head, thereby cleaning and massaging the opposing teeth at the same time that the other three sets of bristles are doing the primary cleaning. The toothbrush handle is attached to the center of the head for ease of use and the ability to reach the back molars.



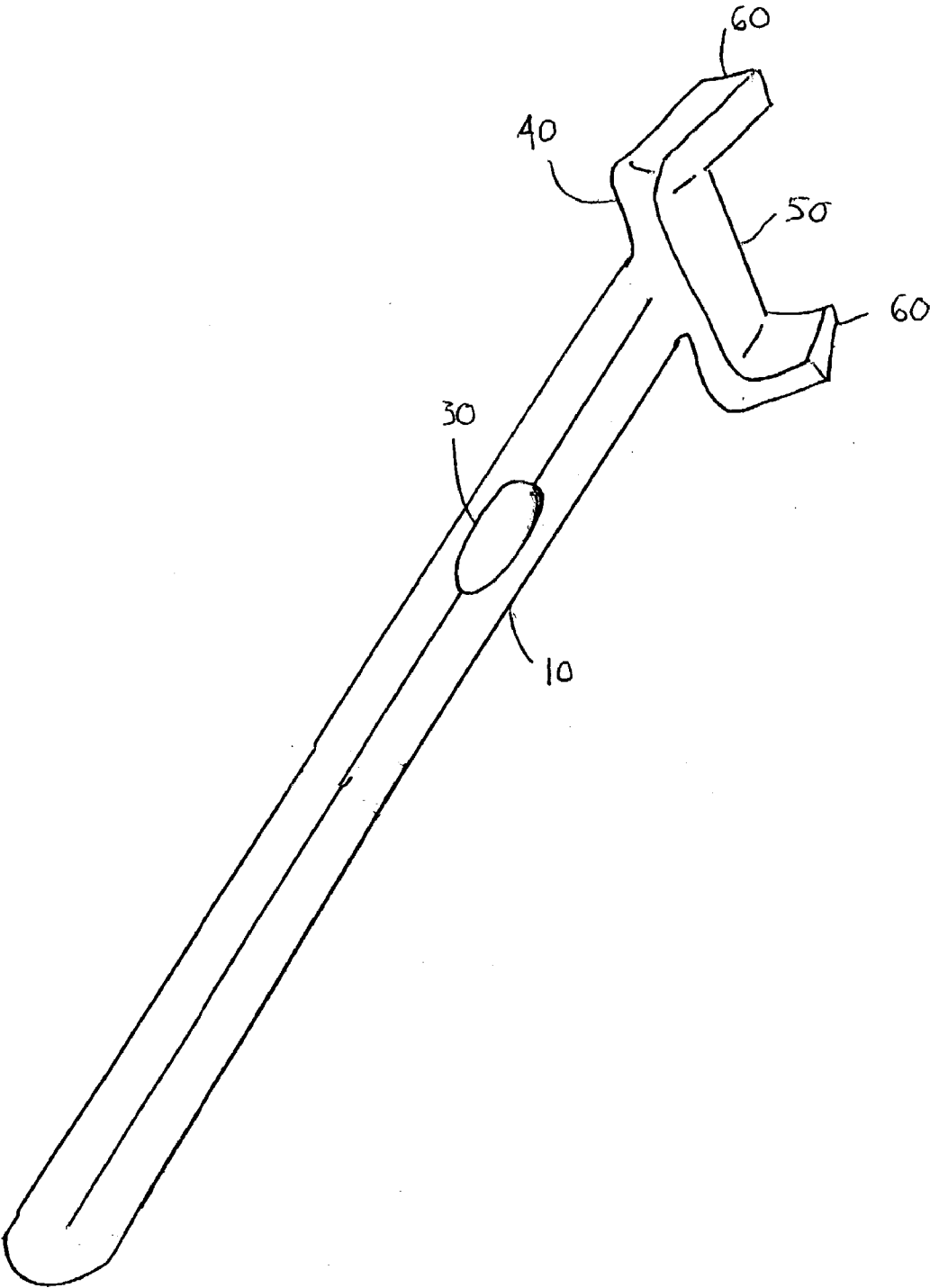


Fig. 1

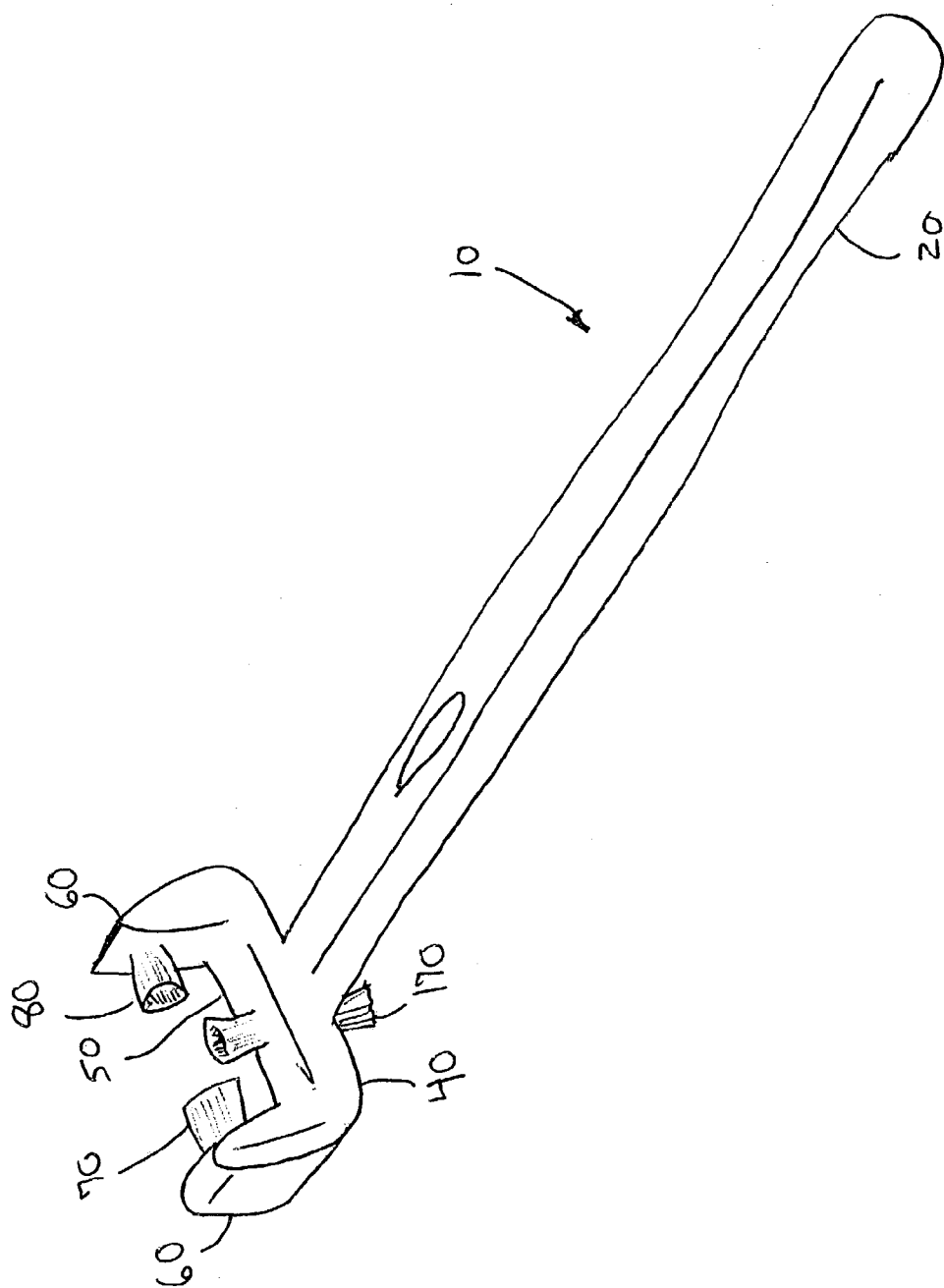


Fig. 2



Fig. 3

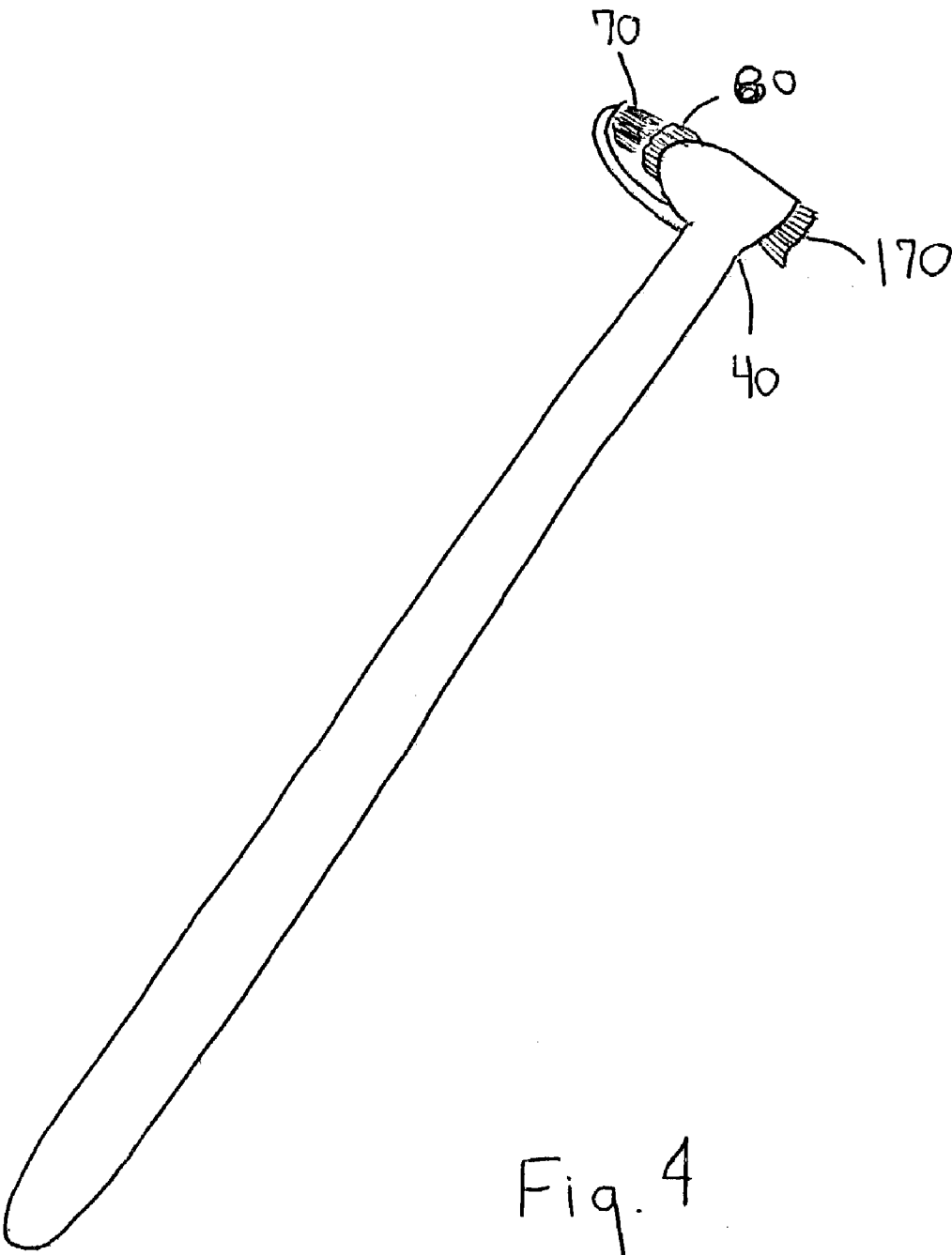


Fig. 4

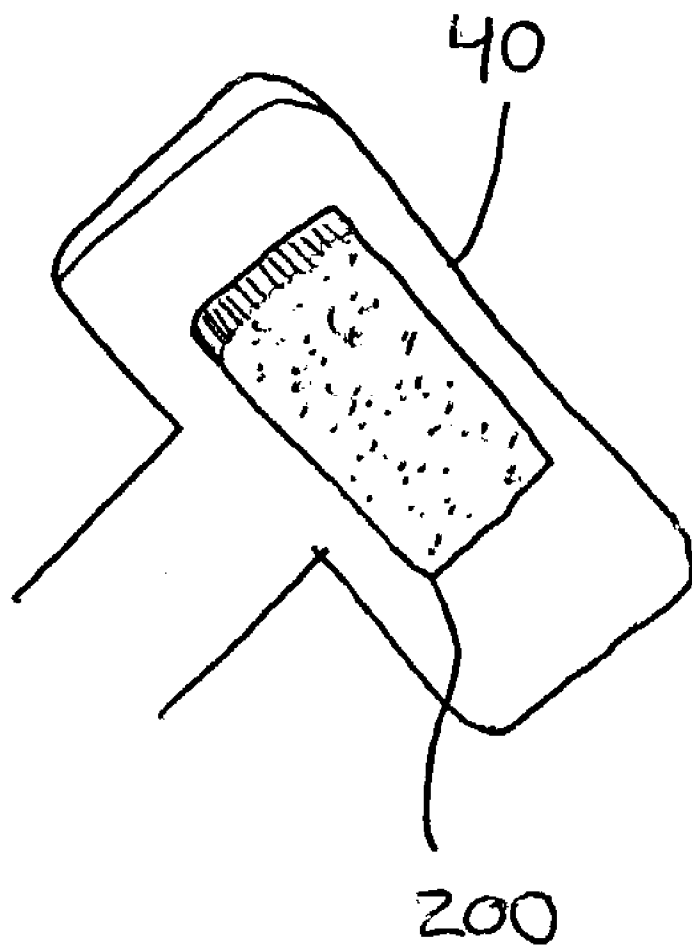


Fig. 5

TOOTH BRUSH WITH FOUR BRISTLE GROUPS**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] This application derives priority from the following provisional applications:

[0002] (1) Serial No. 60/328,511, filed Oct. 11, 2001, entitled Toothbrush with Multi-directional Bristle Groups", and

[0003] (2) Serial No. 60/361,432, filed Feb. 28, 2002, entitled Toothbrush with Four Bristle Groups.

BACKGROUND OF THE INVENTION

[0004] 1. Field of the Invention

[0005] The present invention relates generally to devices for the care of teeth of domestic animals and people and more particularly, to a toothbrush for comprehensive cleaning of the teeth of such animals and people, and comprising a toothbrush head with four distinct sets of bristle tufts, each set having a distinct purpose.

[0006] 2. Description of the Background

[0007] It is well known that people should brush their teeth regularly to prevent build up of tartar and plaque along the outer surfaces and in the interproximal areas between the teeth, which can lead to gum disease, tooth loss, and unpleasant smelling breath.

[0008] It is also well known that cats and dogs should have their teeth brushed for the same reasons as people. Many pet owners are reluctant to clean their pet's teeth because of the time it takes and the difficulty in brushing, particularly as the brushing progresses and the pet becomes agitated. In lieu of brushing the pet's teeth, many pet owners take their pets to the veterinarian for brushing.

[0009] Many of the available toothbrushes have only one head with one set of bristles. Yet, the prior art is replete with variations of toothbrushes that attempt to vary the formation of the bristles to improve the effectiveness of the toothbrush. However, these examples do not allow for simultaneous full coverage of the mesial, distal and occlusal surfaces of the teeth, while cleaning and massaging the opposing teeth at the same time. These features are particularly beneficial when brushing pets' teeth because of the need to thoroughly clean the teeth as quickly as possible before the pet becomes too agitated.

[0010] For example, U.S. Pat. No. 6,276,021 to Hohlbein shows a toothbrush having a plurality of peripheral bristle tufts and a plurality of adjacent bristle bars located internally within the toothbrush head, to provide support for the peripheral bristle tufts during brushing.

[0011] U.S. Pat. No. 2,214,407 to A. A. Deutsch, issued in 1940 and now expired, discloses a brush head made in three parts, wherein the end bristles on the longitudinal sides of the lateral bristle carriers are longer than the middle groups of bristles in these parts.

[0012] U.S. Pat. No. 5,305,491 to Hegemann discloses a toothbrush having three brush heads that self-adjust to maintain contact with the surfaces of the teeth and the gums. The three brush heads are independently attached to a single

handle through elongated flexible arms and adjust independently to maintain contact with the surfaces of different size teeth and gums.

[0013] Likewise, U.S. Pat. No. 5,673,454 to Quintilla, et al. shows three separate brush heads, a right, a left and center, each attached to a separate arm and each arm glued to an elongated handle.

[0014] It would be greatly advantageous to provide a toothbrush with four sets of bristle tufts attached to the toothbrush head for thorough teeth cleaning. Two of such sets of bristles are attached to the front of the toothbrush head opposite each other at a 90 degree angle to the face of the head, to cover the mesial and distal surfaces of the teeth, and the third set of bristles protrudes from the center of the face of the toothbrush head, perpendicular to the first two bristle sets to cover the occlusal surface of the teeth, and the fourth set of bristles is attached to the back of the toothbrush head for cleaning and massaging opposing teeth.

SUMMARY OF THE INVENTION

[0015] It is, therefore, an object of the present invention to provide a toothbrush wherein two sets of bristles are perpendicular to the toothbrush head, set opposite each other to cover the mesial and distal portions of the teeth.

[0016] It is another object to provide a toothbrush wherein a third set of bristles is attached to the face of the toothbrush head, spaced perpendicular to the first two sets of bristles to cover the occlusal surface of the teeth.

[0017] It is another object to provide a toothbrush wherein a fourth set of bristles is attached to the back side of the toothbrush head to massage and clean the occlusal surface of opposing teeth.

[0018] It is still another object to provide a toothbrush wherein the handle is attached to the center of the toothbrush head to position the toothbrush head to allow for reaching the back molars.

[0019] It is another object to provide a toothbrush as described above that has an indent one third down along the handle for ease of gripping.

[0020] It is another object to provide a toothbrush as described above that is sturdy, and yet economical to manufacture.

[0021] It is another object to provide a toothbrush with soft bristles.

[0022] It is still another object to provide a mechanism as described above that is effective for both humans and pets.

[0023] It is yet another object to provide a mechanism as described above that is efficient, enabling the person brushing the teeth to complete the process thoroughly, yet quickly.

[0024] It is still another object to provide a toothbrush that helps to keep the jaw open while softening the bite of a domestic animal.

[0025] According to the present invention, the above-described and other objects are accomplished by providing a toothbrush wherein the toothbrush head contains four sets of soft bristles. Three of the sets of bristles are attached to the front face of the toothbrush head, with two opposing sets of soft bristles to cover the mesial and distal surfaces of the

teeth and a third set perpendicular to the other two sets to cover the occlusal surface of the teeth. The fourth set of bristles is attached to the back side of the toothbrush head to massage and clean the opposing teeth while the three sets of bristles on the front side are performing the primary cleaning. The toothbrush handle is attached to the center of the toothbrush head to enable the toothbrush to extend to the back molars. Said handle includes an indentation for gripping the handle soundly. Given the foregoing configuration, the toothbrush can brush the mesial, distal and occlusal surfaces of the teeth at the same time, while massaging and cleaning the opposing teeth, therefore, facilitating comprehensive cleaning, ease of use and quicker brushing time.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] Other objects, features, and advantages of the present invention will become more apparent from the following detailed description of the preferred embodiment and certain modifications thereof when taken together with the accompanying drawings in which:

[0027] FIG. 1 is a front view of the toothbrush without bristle tufts.

[0028] FIG. 2 is a front view of the four-tufted toothbrush as in FIG. 1, illustrating three sets of bristle tufts attached to the front of the toothbrush head; two sets positioned opposite each other and the third set perpendicular to the other two sets.

[0029] FIG. 3 is a rear view of the four-tufted toothbrush as in FIG. 1 with the fourth set of bristles attached to the back side of the toothbrush head.

[0030] FIG. 4 is a side view of the four-tufted toothbrush as in FIG. 1.

[0031] FIG. 5 is a rear view of the four-tufted toothbrush incorporating a second embodiment of the fourth set of bristles of the toothbrush head.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0032] FIG. 1 is a front view of the toothbrush without bristle tufts according to the present invention. The toothbrush of FIG. 1 facilitates the positioning of three distinct sets of bristles on the front face of the head of the toothbrush, and one set of bristles on the back side of the toothbrush head, all in a particular configuration to maximize maneuverability and cleaning effectiveness. The particular illustrated embodiment is a plastic handle 20 with an indentation 30 one third down from the top of the handle for ease of gripping said handle. The toothbrush user grips the handle at the indentation between thumb and forefinger whereby the toothbrush can be comfortably held and easily moved into the mouth and along the surface of the teeth. Said handle is integrally-molded or otherwise attached to the head of the toothbrush 40 at the center of the head. The head is relatively narrow and flares out on either side (as will be described), the handle joining the head in the center. Positioning the handle in the center of the head allows the toothbrush to enter the mouth at the appropriate angle for reaching the back molars.

[0033] In more detail, the toothbrush head comprises a flat laterally protruding base 50 with opposing spaced ends 60

angled upwardly at 90 degrees, with the length of the base being approximately $1\frac{3}{8}$ inches and each upward turned end being approximately $\frac{1}{2}$ inch in length. The particular toothbrush dimensions may vary somewhat for a human, a cat or a dog.

[0034] Three distinct sets of bristles are embedded in the front face of the head, one set protruding upward from the flat base 50 for brushing the occlusal surface of the teeth, and one each protruding inwardly from the respective opposing spaced ends 60 to brush the mesial and distal surfaces of the teeth. These three distinct sets of bristles generally converge and conform to a row of teeth to cover multiple surfaces of the teeth simultaneously. The configuration and dimensions of the toothbrush head enable the user to comfortably manipulate it inside the mouth so that all front and back teeth may be reached. The fourth set of bristles is embedded in the back side of the toothbrush head for massaging and cleaning the opposing teeth while the front bristles are performing the primary cleaning.

[0035] To use the brush, the user simply pushes and drags it across each row of teeth, maintaining the flat base 50 generally parallel to the occlusal surface of the teeth, such that all of the occlusal, mesial and distal surfaces of all of the teeth are thoroughly cleaned.

[0036] FIG. 2 is a front view of the four-tufted toothbrush as in FIG. 1, illustrating three sets of bristle tufts attached to the front face of the toothbrush head; two sets 70, 80 positioned diametrically opposite each other and the third set 90 extending perpendicularly between the other two sets. The first set of bristle tufts 70 brushes the mesial surface of the tooth. The second set of bristle tufts 80, opposite the first set, brushes the distal surface of the teeth. The third set of bristle tufts 90, in the center of the toothbrush head base, brushes the occlusal or top surface of the teeth. This configuration allows for simultaneous brushing of all three surfaces of the teeth. A fourth set of bristles 170 is attached to the back side of the toothbrush head for concurrent massaging and cleaning of the opposing teeth.

[0037] FIG. 3 is a rear view of the four-tufted toothbrush as in FIG. 1 illustrating the fourth set of bristles attached to the back side of the toothbrush head. The fourth set of bristles 170 are embedded in the back side of the toothbrush head 40 and the fourth bristle tuft is configured in an oval in the center of the toothbrush head. This fourth tuft of bristles 170 on the back of the brush massages and cleans the opposing teeth at the same time that the three bristle tufts on the front side of the brush are performing the primary cleaning of the teeth; e.g., if the bottom teeth are being cleaned, the top teeth are massaged and cleaned by the fourth tuft of bristles at the same time. The fourth tuft also helps to keep the jaw open while brushing the back molars and softens the bite if the patient bites down on the brush. The configuration and dimensions of said toothbrush head enables the toothbrush head to comfortably fit inside the mouth and reach the front and back teeth, and top and bottom teeth.

[0038] FIG. 4 is a side view of the four-tufted toothbrush as in FIG. 1. All four sets of bristles are embedded in the toothbrush head 40. The first, second, and third set of bristles are attached to the front face of the toothbrush head. The first set of bristle tufts 70 brushes the mesial surface of the tooth. The second set of bristle tufts 80, opposite the first set,

brushes the distal surface of the teeth. The third set of bristle tufts **90** (not shown in this figure), in the center of the toothbrush head base, brushes the occlusal or top surface of the teeth. The fourth set of bristle tufts **170** attached to the back side of the toothbrush head **40** cleans and massages opposing teeth while the other three sets do the primary cleaning.

[0039] FIG. 5 is a rear view of the four-tufted toothbrush incorporating a second embodiment of the fourth set of bristles of the toothbrush head. In this embodiment, the fourth set of bristle tufts **200** is attached to the back of the toothbrush head **40** and the tuft is configured in a rectangular shape across the width of the toothbrush head.

[0040] The foregoing design thoroughly cleans the mesial and distal portions of the teeth, as well as the occlusal surface of the teeth, while simultaneously massaging the occlusal surface of opposing teeth. This degree of efficiency is extremely important for dogs where patience tends to wear thin very quickly. Moreover, the handle configuration which is attached to the center of the toothbrush head allows easy reach to the back molars, and it is sturdy, and yet economical to manufacture.

[0041] Having now fully set forth the preferred embodiments and certain modifications of the concept underlying the present invention, various other embodiments as well as certain variations and modifications of the embodiments herein shown and described will obviously occur to those skilled in the art upon becoming familiar with said underlying concept. It is to be understood, therefore, that the invention may be practiced otherwise than as specifically set forth in the appended claims.

What is claimed is:

1. A toothbrush for cleaning teeth comprising:
 - a handle;
 - a toothbrush head fixedly attached to said handle, said head further including,
 - a base protruding laterally from said handle to opposing ends, the ends being angled upward from said base,
 - first and second sets of bristle tufts fixedly attached to each upwardly turned end of said base, wherein said first and second sets of bristle tufts extend inward toward each other,
 - a third set of bristle tufts fixedly attached to a center of said base and extending perpendicular to said first and second sets of bristle tufts.
2. The toothbrush according to claim 1, wherein said toothbrush head further comprises a fourth set of bristle tufts fixedly attached to said base opposite said third set of bristle tufts, whereby said toothbrush simultaneously engages the mesial, distal, and occlusal surfaces of the teeth during the cleaning process.
3. The toothbrush according to claim 1, wherein said base is approximately $1\frac{1}{8}$ inches long.
4. The toothbrush according to claim 1, wherein each of said opposing ends are approximately $\frac{1}{2}$ inch long.
5. The toothbrush according to claim 2, wherein said fourth set of bristle tufts is configured as an oval located in the center of said base.

6. The toothbrush according to claim 2, wherein said fourth set of bristle tufts is configured as a rectangle across an exposed surface of said base.

7. The toothbrush according to claim 1, wherein said handle is integrally attached to a midpoint of the base of said handle.

8. The toothbrush according to claim 1, wherein said handle further comprises an indentation whereby said toothbrush is comfortably, yet firmly held during the cleaning process.

9. The toothbrush according to claim 8, wherein said indentation is located at a point that is one-third of the length of said handle from said toothbrush head.

10. The toothbrush according to claim 1, wherein said bristles comprise poly-plastic bristles.

11. A toothbrush for cleaning teeth comprising:

a handle;

a toothbrush head fixedly attached to said handle, said head further including,

a base protruding laterally from said handle to opposing ends, the ends being angled upward from said base,

first and second sets of bristle tufts fixedly attached to each upwardly turned end of said base diametrically opposite each other, wherein said first and second sets of bristle tufts extend inward toward each other,

a third set of bristle tufts fixedly attached to a center of said base and extending perpendicularly between said first and second sets of bristle tufts, and

a fourth set of bristle tufts fixedly attached to said base opposite said third set of bristle tufts;

whereby said toothbrush simultaneously engages the mesial, distal, and occlusal surfaces of the teeth during the cleaning process.

12. The toothbrush according to claim 11, wherein said base is approximately $1\frac{1}{8}$ inches long.

13. The toothbrush according to claim 11, wherein each of said opposing ends are approximately $\frac{1}{2}$ inch long.

14. The toothbrush according to claim 11, wherein said fourth set of bristle tufts is configured as an oval located in the center of said base.

15. The toothbrush according to claim 11, wherein said fourth set of bristle tufts is configured as a rectangle across an exposed surface of said base.

16. The toothbrush according to claim 11, wherein said handle is integrally attached to a midpoint of the base of said handle.

17. The toothbrush according to claim 16, wherein said handle further comprises an indentation whereby said toothbrush is comfortably, yet firmly held during the cleaning process.

18. The toothbrush according to claim 17, wherein said indentation is located at a point that is one-third of the length of said handle from said toothbrush head.

19. The toothbrush according to claim 11, wherein said bristles comprise poly-plastic bristles.

* * * * *