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Black

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[54] **DEMONSTRATION DEVICE FOR ILLUSTRATING TOOTH STRUCTURE AND DENTAL CARE**

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[52] **U.S. Cl.** **32/71**
[51] **Int. Cl.** **A61c 19/00**
[58] **Field of Search** 32/71; 35/17

[56] **References Cited**

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Attorney—Eugene M. Eckelman

[57] **ABSTRACT**

A demonstration device employing a backing sheet with a base member secured thereon representing a jawbone. The base member has a socket which receives the lower or root portion of a tooth representing member. Elastic tie members connect the root portion of the tooth representing member to the base to illustrate a periodontal fiber connection. A tab member is pivotally attached to the upper portion of the tooth representing member and is movable between an exposed position adjacent to an edge of the tooth representing member and a hidden position. A pull string is attached to the tab for operating the tab between its two positions, and such pull string in moving the tab to its hidden position demonstrates the removal of plaque from a tooth by the use of dental floss. Auxiliary tooth representing members are provided on each side of the first mentioned tooth representing member, one of such auxiliary tooth representing members being pivotal so as to be moved out of the way during a demonstration. A pair of transparent panels representing gum portions are pivotally connected to the base and have an upper edge which demonstrates a gum margin associated with the tooth representing member. An auxiliary panel is employed having a toothbrush representation thereon and is adapted to be positioned in the gum margin to illustrate how such margin area can be cleaned with a toothbrush.

7 Claims, 5 Drawing Figures

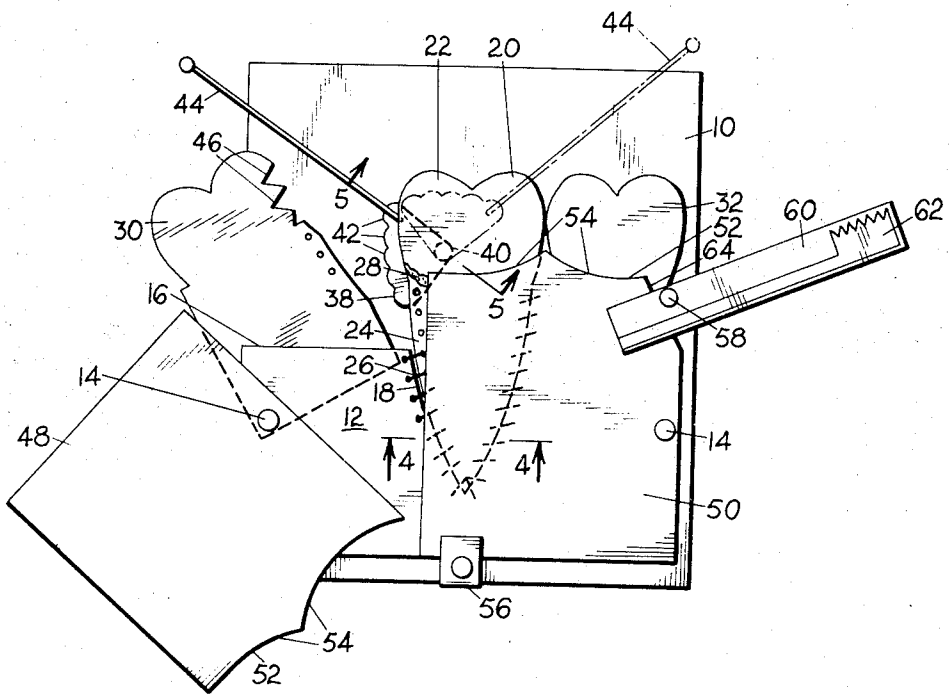


FIG. 1

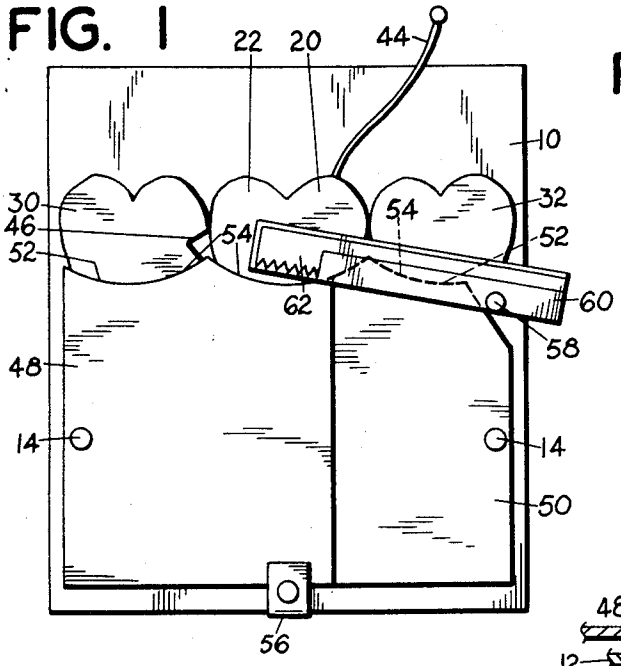
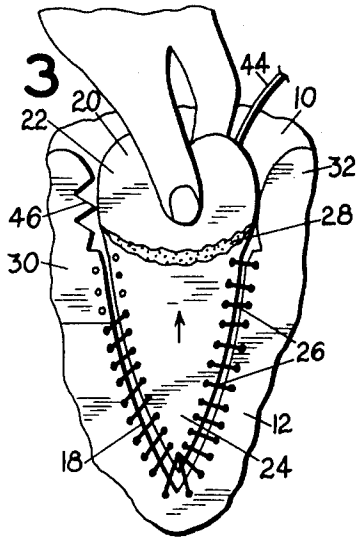


FIG. 3



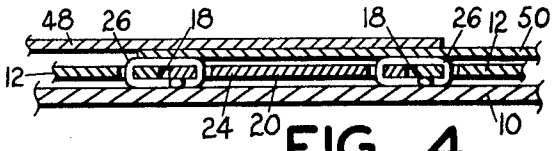


FIG. 4

FIG. 2

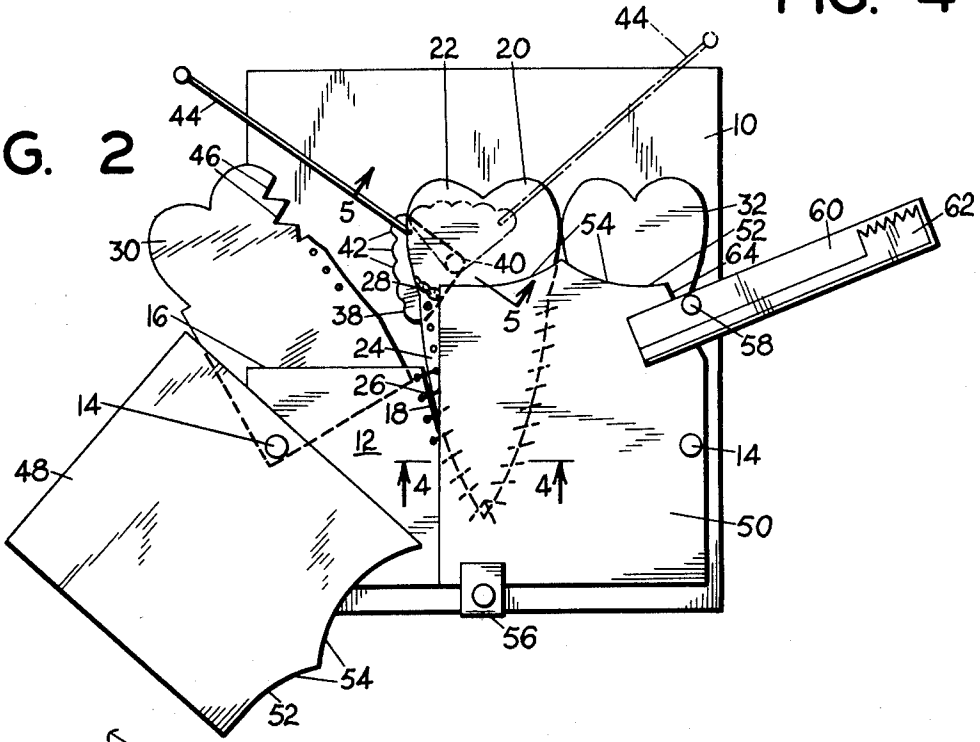
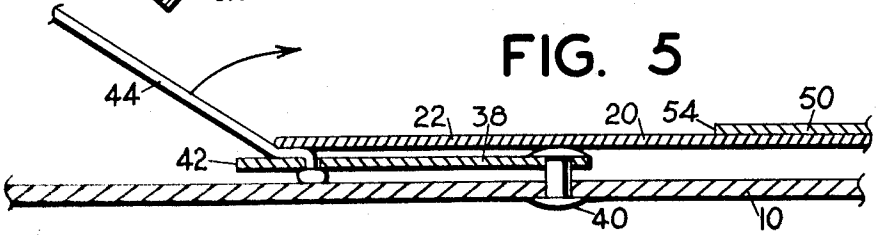


FIG. 5



DEMONSTRATION DEVICE FOR ILLUSTRATING TOOTH STRUCTURE AND DENTAL CARE

BACKGROUND OF THE INVENTION

This invention relates to a new and novel demonstration device for illustrating tooth structure and dental care.

As is well known, proper tooth care provides much healthier teeth and gums. Proper tooth care goes considerably beyond the normal brushing since brushing does not clean all the necessary areas. More particularly, a gum or gingival portion which lies against the tooth, known as the gingival margin, is unattached. This margin extends completely around the tooth and it is thus difficult to remove plaque which has accumulated thereunder. The tooth is seated in a socket in the jawbone and has a movable attachment herein by tie means known as periodontal fibers. This unattached margin of the tooth allows plaque to work down in the tooth socket which sometimes causes dental disease. The majority of persons are unaware of such tooth structure and in addition are unaware of a proper manner in which to clean the teeth.

SUMMARY OF THE INVENTION

According to the present invention and forming a primary objective thereof, a demonstration device for illustrating tooth structure and dental care is provided which is intended to instruct persons on tooth structure and necessary dental care therefor to accomplish proper care of the teeth and gums.

Other objects of the present invention are to provide a demonstration device for illustrating tooth structure and dental care which has a base member representing a jawbone and including first means fixedly attached to said base member representing a tooth, the tooth having an upper exposed portion and a lower root portion and the device also including second means movably mounted relative to said first means and having a pull string arranged such that the pull string is adapted to move the second means between an exposed position and a hidden position to represent that upon engagement of a tooth with dental floss, foreign substance will be cleaned from a tooth; which includes a tooth socket for such first means and connecting tie means for the first means which illustrate the periodontal fiber connection of a tooth in its socket; which has a roughened or marked area on said first means to illustrate the collection of plaque and tartar on a tooth; which employs movable panel means having edge portions associated with the tooth representing member to designate unattached gum or gingival margin portions; and which also includes toothbrush representing means movable relative to the tooth representing means and arranged to illustrate the cleaning of the unattached area of the gums at the teeth.

The invention will be better understood and additional objects and advantages will become apparent from the following description taken in connection with the accompanying drawings which illustrate a preferred form of the device.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a device embodying features of the present invention;

FIG. 2 is also a plan view but showing certain of the parts opened out for demonstration;

FIG. 3 is a fragmentary plan view of a portion of the device showing a step in the demonstration; and

FIGS. 4 and 5 are enlarged fragmentary sectional views taken on the lines 4—4 and 5—5, respectively, of FIG. 2.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

With particular reference to the drawings, the present demonstration device comprises a backing sheet 10 which preferably is rigid or semi-rigid. Secured crosswise of the backing sheet 10 intermediate its top and bottom is a plate-like base member 12 which preferably is semi-rigid but at least having some flexibility. It is secured to backing sheet 10 by a pair of fastener members 14 such as rivets on opposite sides and spaced downwardly from the upper edge 16 of the base member 12.

Leading downwardly from the upper edge 16 of the base member 12 inwardly from the sides thereof is a socket 18. Associated with the socket 18 is a tooth representing member 20 having an upper portion 22 which represents the normally exposed or enamel portion of the tooth and a lower portion 24 which represents the embedded or root portion. The root portion 24 is attached in the socket 18 by a plurality of elastic ties 26 which simulate the periodontal fibers connection. By means of the elastic ties, the tooth has some movement in the socket and the tooth representing member 20 and the base 12 can be used to illustrate the fact that a real tooth is movable in its socket because of the elasticity of the periodontal fibers. FIG. 3 shows manual movement of the tooth representing member 20 in its socket wherein such illustrates that periodontal fibers allow a similar movement for a real tooth. The number 28 designates a roughened or marked portion on the tooth which represents a layer of plaque. It can thus be shown by the present device that plaque generally gathers at about the gum line and since the tooth is movable in its socket, such plaque may work down the tooth to sometimes cause infection.

Two auxiliary tooth representing members 30 and 32 are provided on opposite sides of the main tooth representing member 20. The members 30 and 32 are used primarily to illustrate tooth positioning. The tooth representing member 32 is stationary and can be formed merely as an integral upward extension of the base member 12. Tooth representing member 30, however, is pivotally attached to the base member by the left-hand pivot 14 whereby it can be pivoted to a position in engagement with the main tooth 20 as shown in FIG. 1 or it can be pivoted away to be spaced from the main tooth as shown in FIG. 2, for a purpose to be described.

Associated with the main tooth representing member 20 is a tab 38 disposed behind such tooth representing member and pivotally connected to the backing sheet by a pivot 40. This tab has an edge portion 42 adapted to project beyond one side edge of the tooth representing member 20 in one rotated position of the tab but in another rotative position the tab portion 42 is hidden behind the tooth. Portion 42 is preferably of uneven contour such as saw tooth or any irregular shape to attract attention and is intended to represent plaque which may form on a tooth surface.

Attached to the tab 38 on one side relative to the pivot is a pull string 44 which when pulled down causes

the tab 38 to rotate to a position where the projecting portion 42 is visible at the side edge of the tooth. When the pull string 44 is pulled upward, however, the portion 42 is hidden behind the tooth representing member 20. This latter position is shown in phantom lines in FIG. 2. In the movement of the pull string 44 from its lower position to its upper position, it appears to ride along the edge of the tooth representing member 20 which would be similar to a cleaning movement by dental floss, and thus there is the demonstration that when the tooth is rubbed with dental floss, plaque will disappear. Tooth representing member 30 normally may maintain its position in abutment with tooth representing member 20 but during the demonstration using the tab 38, the member 30 may be pivoted out of the way as shown in FIG. 2.

Tooth representing member 30 has one or more recesses 46 on its edge which faces member 20, and these recesses designate cavities.

A pair of front panels 48 and 50 are pivotally connected to the base member 12 by means of the fasteners 14. The pivot means 14 for these panels is adjacent the outer edge thereof whereby such panels can be rotated either to a closed position as shown in FIG. 1 wherein the upper edge 52 is disposed just above the point at which the enamel portion and the root meet or to an open position as shown in FIG. 2 to expose all portions of the teeth representing members. The upper edges 52 of the panels 48 and 50 have concaved portions 54 which upon closed position of the panels represent curved portions of the gum at a tooth as in actual gum construction, the panel 48 overlapping the panel 50 a small amount. The contoured portions 54 of the overlapping panels are arranged to be aligned in the closed position of the panels to provide the uniform curvature as seen in FIG. 1. A stop tab 56 is secured to the backing sheet 10 adjacent to the bottom of base member 12 and is arranged to be engaged by bottom portions of panels 48 and 50 to support the latter in their closed position.

Pivotally supported on a fastener 58 at the upper right hand portion of base member 12 is an auxiliary panel 60 having a toothbrush representation 62 thereon. The representation 62 is integral with the panel 60, a preferred arrangement being to construct the panel 60 of transparent plastic material and to print the representation 62 thereon. In order for the panel 50 to rotate on its pivot 14 it must be cut away from pivot 58, such cut line being designated by the numeral

In the operation of the present device for demonstrating tooth structure and dental care, it may be desired to initiate the demonstration with the panels 48 and 50 open and the teeth representing members 20, 30 and 32 in touching engagement. In such condition of the device, the pull string 44 can be in a down position as shown in FIG. 2. Tooth structure could be explained, namely, the abutting engagement of the teeth, the manner in which a tooth is contained in a socket, the tooth construction and possible plaque or tartar 28 and 42 and cavities 46. The tooth representing member 20 may be manipulated in its socket 18, as shown in FIG. 3, to illustrate the possibility of infection working down in the root portion of the tooth if it is allowed to collect improperly. Also in FIGS. 2 and 3 some of the ties 26 are shown as being missing. Such is used to demonstrate a destruction of some periodontal fibers as a result of disease.

It may then be desired to show the benefits of cleaning by using dental floss, and for this purpose the tooth 30 is rotated away from the tooth 20 and the pull string 44 moved upwardly. As explained hereinbefore, the upward movement of the pull string pivots the projecting portion 42 of tab 38 behind the tooth and it appears that the pull string which is explained as dental floss removes plaque as it moves up the tooth.

Thereupon, the panels 48 and 50 can be closed, with the panel 48 being on the outer side of panel 50. Then the panel 60 is moved downwardly into the area between the two panels 48 and 50 to a position wherein the bristles of the toothbrush representation 62 are disposed slightly below the upper edge 52 of the panel 48, namely, to a position slightly lower than that shown in FIG. 1. This relationship of the bristles illustrates that a toothbrush can be used to clean foreign material from the area between the teeth and the unattached portion of the gum.

Other demonstrations may be conducted as desired. For example, the tooth representing member may be pivoted in a counterclockwise direction as viewed in FIG. 2 an amount sufficient that its lower right-hand corner is above the upper edge 16 of base member 12. Such will form a recess between the bottom edge of member 30 and the top edge 16 and said recess can be used to designate bone loss. It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A demonstration device comprising
   a. a base member representing a jawbone portion,
   b. first means fixedly attached to said base member representing a tooth having an upper exposed portion and a lower root portion,
   c. second means movably supported relative to said first means and representing a foreign substance which may have gathered on a tooth,
   d. said second means being movable between two positions one of which comprises an exposed position projecting beyond said exposed portion of said first means and the other of which comprises a hidden position behind the exposed portion of said first means,
   e. and a pull string attached to said second means arranged to move the latter between its said two positions and arranged to represent dental floss,
   f. said pull string in moving said second means to said other position being movable adjacent to a portion of said first means in the area of exposal of said second means with said first means whereby to represent that upon engagement of a tooth with dental floss, foreign substance will be cleaned from a tooth.

2. The demonstration device of claim 1 including third means movably supported adjacent to said first means and also representing a tooth, said third means being movable toward and away from said first means to allow visible movable operation of said second means between its two positions.

3. The demonstration device of claim 2 including fourth means supported adjacent to said first means on

the side opposite from said third means and also representing a tooth.

4. The demonstration device of claim 1 including

a. a flexible panel movable between a first position wherein an edge thereof is disposed at the bottom of the upper exposed portion of said first means to represent a gum margin and a second position wherein said edge of the panel is disposed away from said upper exposed portion,

b. and toothbrush representing means movable relative to said first means and arranged to be moved between said first means and said flexible panel to be moved between said first means and said flexible panel to illustrate means for cleaning the gum margin.

5. The demonstration device of claim 4 including

a. a second flexible panel also movable between a

first position wherein an edge thereof is adjacent the upper exposed portion of said first means to represent a gum margin and a second position wherein its said edge is disposed away from said upper edge portion.

6. The demonstration device of claim 1 wherein

a. said base member includes a recess representing a tooth socket and said lower root portion of said first means extends into said socket,

b. and elastic means connected between said base member and said lower root portion of said first means representing periodontal fibers which connect a tooth to a jawbone socket.

7. The demonstration device of claim 1 including a roughened portion on said first means representing a foreign substance which may have gathered on a tooth.

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