ABSTRACT: An oral hygiene device for cleaning the teeth and massaging the gums including a brush member and a fluid discharge member having a nozzle, wherein both members can be used separately or in combination. The brush member is adapted to be displaced along the fluid discharge member to a position adjacent the nozzle or to a storage position within a handle member.
ORAL HYGIENE DEVICE

BACKGROUND OF THE INVENTION

The present invention is directed to new and useful improvements in oral hygiene devices and more particularly to such devices having a brush member and a fluid discharge member.

Oral hygiene devices that include an elongated tube having a discharge nozzle at one end thereof to direct fluid against the gums and interdental areas of the mouth are well-known. This fluid discharge device can be used to either pulsatate fluid onto the gums or to provide a continuous flow of fluid into the mouth. A pulsation of fluid onto the gums at selected frequencies will periodically deflect the gum tissue thereby stimulating the blood circulation within the gums much the same as a message. A continuous nonpulsating discharge of fluid can be used for general mouthwashing purposes such as gargling or rinsing the teeth and gums.

It is also known to combine a fluid discharge device with a toothbrush to permit a discharge of fluid into the mouth during brushing of the teeth. As the toothbrush member cleans the teeth the fluid output from the discharge member concurrently massages the gums or rinses the mouth and teeth. A fluid discharge member which delivers pulsations of fluid can additionally be used to remove food particles that adhere to the teeth and to clean the teeth. It will be appreciated that when a brush member and a fluid discharge member are combined in one device for dual functioning thereof the beneficial effects of each member can be achieved simultaneously.

In certain oral hygiene devices having this dual function the brush member and fluid discharge member are inseparably combined whereby the respective members can be used together, or the brush can be used without an accompanying discharge of fluid. However, due to the integral combination of components the user cannot disassociate the brush from the fluid discharge member for separate use of the discharge member. This is an inconvenience, especially when a particle of food or other material is wedged between the teeth so as to be inaccessible to the bristles of the toothbrush. Under these conditions a fluid discharge member disassociated from a brush is capable of being easily manipulated near the particle to dislodge it from the teeth with a discharge of fluid.

In other dual function oral hygiene devices a toothbrush is detachably combined with a fluid discharge member. However, under the known arrangement the brush must be physically removed from the device in order to permit separate use of the discharge member. The necessity to remove and reattach the brush member is an inconvenience, especially when the brushing and fluid discharge functions are being used in combination and the brush member is simultaneously used on the fluid discharge member separately. Unless the brushing or fluid discharge components can be readily associated and disassociated the user will often neglect to take advantage of the provision for separate use of the fluid discharge member.

It is an object of this invention to provide a novel oral hygiene device.

Another object is to provide a novel oral hygiene device having a brush member combined with a fluid discharge member.

Another object is to provide a novel oral hygiene device wherein novel means are provided for combining the brush member with the fluid discharge member whereby the latter can be used separately or in combination.

A further object is to provide a novel oral hygiene device wherein the brush member is adapted to be displaced along the fluid discharge member for storage within a handle.

BRIEF SUMMARY OF THE INVENTION

The present invention contemplates a novel oral hygiene device comprising a brush member and a fluid discharge member including a nozzle at the discharge end thereof. In one embodiment the brush member is slidably mounted on the discharge member for displacement thereon to a first limit position adjacent the nozzle wherein the brush is used with or without an accompanying discharge of fluid through the nozzle. The brush is also displaceable upon the fluid discharge member to a second limit position spaced away from the nozzle thereby permitting placement of only the fluid discharge member into the mouth.

The above and other objects and advantages of the present invention will appear more fully hereinafter from a consideration of the detailed description which follows, taken together with the accompanying drawings wherein one embodiment of the present invention is illustrated.

DESCRIPTION OF VIEWS OF DRAWING

FIG. 1 is a perspective view of an oral hygiene device which incorporates one embodiment of the present invention and shows the brush member positioned for use with the nozzle of the fluid discharge member.

FIG. 2 is a bottom view thereof;

FIG. 3 is a side elevation view thereof;

FIG. 4 is a side elevation view thereof with portions of the handle brush and fluid discharge member broken away and shows the brush member positioned within the handle member;

FIG. 5 is a sectional view taken along the line 5—5 of FIG. 4, and

FIG. 6 is a similar sectional view taken along the line 6—6 of FIG. 3 and rotated 90° from that shown in FIG. 3.

DETAILED DESCRIPTION

Referring now to the drawings for a more detailed description of the present invention, an oral hygiene device incorporating an embodiment thereof is generally indicated by the reference numeral 10 in FIG. 1.

Oral hygiene device 10 includes an elongated channel-shaped handle member 11 (FIG. 1) having a floor 14 (FIG. 2) and spaced sidewalls 12 and 13 (FIG. 1) extending vertically therefrom. Handle 11 is made from any suitable material such as polystyrene or polypropylene. A fluid discharge member 17 (FIG. 4) is secured to floor 14 of handle 11 (FIG. 2) in any suitable manner such as by bonding or cementing. Discharge member 17 (FIG. 4) comprises an elongated tubular conduit 16 that extends beyond the ends of handle 11. Conduit 18 is provided with fluid inlet means such as a nozzle 19 disposed at the discharge end thereof and which nozzle is bent approximately 90° with respect to the axis of conduit 18.

Oral hygiene device 10 further includes a brush member 20 (FIGS. 1 and 2) comprising a stem 21 made from any suitable material such as polypropylene or polystyrene. Stem 21 includes a bristle mounting surface 24 near stem end 22 with bristle tufts 25 (FIGS. 1 and 2) provided thereon, and a rear surface 26 (FIG. 6).

As mentioned above, it is an object of this invention to provide a novel oral hygiene device wherein the brush member is adapted to be displaced along the fluid discharge member for storage within a handle. To accomplish this, a rear surface 26 of stem 21 is provided with an elongated recess 28 (FIGS. 4 and 6) that is C-shaped in transverse cross section. A curved groove 27 (FIGS. 2 and 4) is provided on end 22 of stem 21 and which groove 27 merges into and becomes continuous with recess 28.

The contours of recess 28 and groove 27 (FIG. 4) are slightly larger than, but substantially similar in shape to the respective outer surface contours of conduit 18 and nozzle 19. Conduit 18 is disposed in recess 28 (FIG. 4) for interconnection with brush member 20 and to cause conduit 18 to be shifted alongside conduit 18 to a first limit position adjacent nozzle 19 (FIGS. 1 and 2) whereby curved groove 27 will engage said nozzle, and to a second limit position (FIG. 4) wherein the brush is stored in handle 11.

With brush 20 disposed in the first limit position adjacent nozzle 19 (FIG. 2) a segment of stem 21 designated by the reference letter L in FIG. 2 remains disposed in the channel
portion of handle 11 in bearing relationship with the handle and which segment L prevents a brush member 20 from swiveling about conduit 18 during brushing.

To ensure that brush 20 (FIG. 2) remains in a desired limit position the inner contour of recess 28 (FIGS. 4 and 6) is formed so that conduit 18 makes sufficient surface contact with recess 28 to provide a frictional restraint against movement of brush member 20. Also stem 21 is formed so that rear side 26 (FIGS. 4 and 5) will contact floor 14 of handle 11 to provide additional frictional restraint to maintain brush 20 in a selected limit position. If desired, various other standard detenting devices, such as springs and notches (not shown) can be associated with handle 11, brush member 20, or fluid member 17 to restrain the brush in a selected position on conduit 18.

To facilitate shifting the position of brush member 20 with respect to nozzle 19, a protruding finger-gripping surface 29 (FIG. 1) is provided near an end 23 of stem 21 (FIG. 2). Finger pressure against surface 29 will serve to shift brush 20 along conduit 18.

In use, fluid discharge member 17 (FIG. 1) of oral hygiene device 10 is connected by any suitable means such as a flexible extension tube 30 to a supply of pulsating or continuously flowing fluid (not shown). When combined use of the brushing and fluid discharge members is desired brush 20 (FIG. 4) is displaced along conduit 18 to the first limit position adjacent nozzle 19 (FIG. 1). In this position the brush is used with or without an accompanying discharge of fluid from the fluid member. If desired, the combined brushing and fluid discharge operations can be performed with end 22 of brush 20 spaced a slight distance away from nozzle 19. When it is desired to use discharge member 17 without brush 20 the brush is shifted to a second limit position in a storage compartment defined by the space within the channel portion of handle 11 (FIG. 4) for storage therein. It will be understood by those skilled in the art that means can be provided for sliding both the brush and fluid discharge members into the storage compartment when the oral hygiene device is not being used.

It will be apparent from the foregoing that the advantages of the novel oral hygiene device 10 include among other advantages the provision of a brush member 20 which can be shifted to a plurality of positions with respect to a nozzle 19 of a fluid discharge member 17 to permit combined or separate use of said members. A further advantage is that the brush and fluid members remain intact with device 10 regardless of whether the combined or separate functions of brushing and fluid discharge are being used. Because there is no need to physically detach or otherwise remove the brush member from the oral hygiene device the user can conveniently change back and forth from combined use of the brushing and fluid discharge functions to individual use thereof.

Although one embodiment of the present invention has been illustrated and described in detail, it is to be expressly understood that the invention is not limited thereto. Various changes can be made in the design and arrangement of parts without departing from the spirit and scope of the invention as the same will now be understood by those skilled in the art.

What is claimed is:

1. An oral hygiene device comprising,
   a. a handle having a storage compartment,
   b. an elongated fluid discharge member adapted to be connected to a source of supply of liquid, the discharge member extending from said handle and having fluid outlet means oriented for directing fluid from the source toward the user's mouth for oral hygiene purposes,
   c. a brush member,
   d. means interconnecting said brush member to said fluid discharge member for slidable movement of said brush member on said discharge member, the brush member being manually slidable to a first position wherein said brush member is disposed adjacent said outlet means and to a second limit position wherein said brush member is spaced away from said outlet means and disposed in said storage compartment to facilitate independent use of the discharge member for oral hygiene purposes, and
   e. said interconnecting means including means for maintaining said brush member in either of said limit positions.

2. An oral hygiene device as claimed in claim 1 wherein said handle comprises an elongated U-shaped channel having spaced sidewalls and a floor portion, and said storage compartment comprises the space defined by said sidewalls and floor portion.

3. The device of claim 1 wherein said fluid discharge member comprises a conduit attached to said handle and said brush member comprises a stem having a front surface with bristles provided thereon, and a rear surface, said interconnecting means including a portion of the outer surface of said conduit interengaged in an elongated recess provided in said rear surface whereby said brush member can be shifted along said conduit to said first and second limit positions.

4. The device of claim 3 wherein said brush member, when positioned adjacent said outlet means, has a portion of said stem disposed in said storage compartment in bearing relationship with said handle to restrain said brush member from swiveling about said fluid discharge conduit.

5. The device of claim 3 wherein said rear side of said stem is formed to contact said handle and said slidable interconnecting means are formed to contact each other, said contacts effecting a frictional restraint against movement of said brush member to either of said limit positions.

6. The device of claim 3 wherein means for shifting said brush member are provided on said stem and include a finger-gripping surface for shifting said brush member along said fluid discharge member to either of said limit positions.

7. The device of claim 1 wherein said brush member is provided with a curved groove and said fluid discharge member includes a conduit having a discharge end, said outlet means comprising a nozzle having a 90° bend disposed at said discharge and whereby said curved groove engages said nozzle when said brush member is in said first limit position.