

DENTAL FLOSSER

BACKGROUND OF THE INVENTION

The present invention relates to a dental flosser,
5 and particularly to a dental flosser structure which is
effective for applying force to clean up dental plaque
in the molar area.

Among various organs of human body, tooth has
10 played a key role for chewing food and is also the
upstream factory of the stomach, for delivering food
after crushed to the stomach for further digestion and
absorption so as to provide nutrition as needed for the
body. Because teeth are so important that the
15 maintenance and care of them has become one of daily
necessity items. Perhaps everyone has a fixed habit of
brushing teeth day and night but dentists still
recommend us to rinse the mouth or brush teeth after
each meal, and what is more important is that do not
20 forget using dental flosser for cleaning up dental
plaque left between the teeth because these dental
plaque that can not be removed by tooth brush are
the main cause of periodontal disease. With regard to
the use of dental flosser, it is believed to be a
25 strange issue for many people because it is widely

known a tooth brush is the main and common tool for cleaning up the teeth and many people do not use dental flosser until recommended by the dentists owing to suffering dental disease. Though dental flosser has significant effect for removing dental plaque left between the teeth, however there are a number of obstacles for use, the one is not getting used to it because of operation error and the other one is not available for operation among the public. Because of the problem of not available for operation among the public, dental flosser is not so popular as toothstick. Referring to the problem of occasion for use, dental flosser developed thereafter has resolved it.

15 The dental flosser as mentioned above relates to a structure as FIG. 1, comprising a floss 12 laid between an integrally molded holding end 10 and arch operation end 11; the length of such dental flosser is similar to that of a toothstick so it may be brought by the user for cleaning up the teeth after each meal and it only needs to hold dental flosser with one hand and to cover the mouth with the other hand so as to clean up the teeth easily among the public without worry about impolite manner for exposing the teeth during the use of dental flosser.

Though the appearance of dental flosser has resolved the problems relating to difficult use of floss and limited occasions to use, however such dental flosser has caused other problems of use such as the

5 condition in FIG. 2, when dental flosser 1 is used for cleaning up the space between the incisor area 20 and the canine tooth area 21, and the axial center line 22 of tooth arch is governed, and lateral angle (O) adjustment of open mouth shall not exceed 70 degrees

10 and it is stretched into the space 23 between the teeth within the scope of open mouth for cleaning up the dental plaque by moving up and down closely touching the crown surface 24. For the removal of tartar from the space between the incisor area 20 and the canine tooth area

15 21, because dental flosser is obliquely stretched from the mouth to keep parallel with the space between the teeth so it can be convenient for applying force to remove the tartar without any problem; however, for the molar area 25 on the rear part, the removal of dental plaque

20 is apparent to have difficulty and reasons lie in: the maximum open mouth may be accessible only to the first molar 251 or second molar 252 of right/left molar area 25, and the operation of dental flosser 1 within such a limited open angle 26 has good control without limit by

25 the mouth opening because only operation end 11 is

moving in the mouth while holding end 10 stays outside the mouth; nevertheless, for the second molar 252 and third molar 253 part, because the floss on operation end 11 is nearly perpendicular to the space 23 between the teeth when dental flosser is stretched into the mouth, both operation end 11 and holding end 10 are located within the mouth so it is difficult for adjusting dental flosser to adapt to the direction of the space between the teeth, and even if the best effort were made to open the mouth to the maximum or dental flosser were stretched into the deeper part of the mouth, dental flosser could only be kept a certain contact angle with the space rather than to make a perfect match between them. Therefore not only the floss on operation end can not be stretched into the space between the teeth but also dental plaque removal may become difficult even if the floss were flexible enough for stretching into the space between the teeth owing to certain contact angle between holding end of dental flosser and the space and limited space in the mouth.

A newer type of dental flosser as FIG. 3 has appeared in response to the defect of conventional dental flosser for removing dental plaque of molar. The dental flosser has a downward extending operation end 31 with

floss 32 perpendicular to holder 30. With the help of floss perpendicular to holder, keeping holder 30 outside the mouth while stretching operation end 31 into the mouth can make easy for stretching floss 32 into the space between the molars 25 to clean up the dental plaque up and down. Though the improved dental flosser 3 is effective to remove leftover on the space between the molars in an easy manner, however it has some defects relating to the use as a result of poor structural design. The defects include: the floss can not be stretched into the gum line of the space so it can not thoroughly clean up the dental plaque on the gum line; the second is holding control portion 301 of holder 30 which is not effective for applying force to remove the dental plaque. The cause of such defects lies in: contact angle between operation end 31 and holder 30 is not so designed as subject to the height and width of teeth; when the floss is not yet stretched to reach the bottom (gum line) of the space 23 between the teeth, holder 30 has touched the crown surface 27; if floss were desired for stretching deeper into the gum line 28, tail end of holder 30 has to be elevated to result in holder touching the crown surface on the other end (FIG. 4) and this would be an obstacle to removing the dental plaque up and down; further with regard to applying force of dental

flosser to remove the dental plaque because the dental flosser depends on applying force from both sides of holding control portion 301 laterally held by fingers, the direction of force applied (arrow in FIG. 5) is perpendicular to the direction of removing the dental plaque up and down by floss 32 (arrow of dotted line in FIG. 5) and removing the dental plaque from both sides of holding control portion 301 of holder held by fingers is not effective to remove the dental plaque and further holder 30 could break away from fingers if floss were excessively pushed onto the incisor ledge 24.

According to the aforesaid analysis it is known whether the conventional floss, dental flosser or further improved dental flosser has more or less problems relating to the use or function. Therefore a new and improved dental flosser has been developed in response to the defects of the conventional floss and dental flosser, which has appropriate contact angle between holder and operation end and floss mounting end horizontally extending forward from operation end. With the help of said contact angle and horizontal floss mounting end, the floss can easily be stretched to reach the gum line for removing the dental plaque and may clean up the dental plaque by moving up and down easily

without elevating the tail end of holder. The structure and function of the present invention will further be described below.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an outlook view of the conventional dental flosser.

FIG. 2 is a schematic view illustrating the condition of the conventional dental flosser used on different parts of the teeth.

FIG. 3 is an elevational view illustrating the structure of the improved dental flosser.

FIG. 4 is a schematic view illustrating the operation of improved dental flosser.

FIG. 5 is another schematic view illustrating the operation of improved dental flosser.

FIG. 6 is an elevational view showing the outlook of the present invention.

FIG. 7 is a schematic view illustrating the action of the present invention.

FIG. 8 is a schematic view illustrating the condition of the present invention used on different parts of the teeth.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to FIG. 6, holder 40 and operation end 41 of the present invention keep contacted at certain angle and said angle (θ) is preferred around 150 - 170 degrees; the floss 42 mounting end in front of
5 operation end 41 has a horizontal section 410 and floss 42 and holder 40 are perpendicular and mounted on an arch formed by two ribs 411 of operation end 41.

Referring to FIG. 7, oblique stretching operation
10 end 41 and horizontal section 410 in front of operation end 41 may stretch the floss 42 at most to reach the space between the teeth, and when floss 42 is placed deep into the gum line 28 without necessity of elevating tail end of holder 40 and holder 40 may keep
15 a gap between incisor ledge 27 for finger to stretch inside; referring to FIG. 7, with perpendicular thrust force (as shown by arrow) of floss 42 upon the crown surface 24 and the function of contact angle between holder 40 and operation end 41, it has become very
20 firm; now it only needs to push the present invention forward or pull it backward from holder 40 a maximum perpendicular thrust force and tension force will be produced to act upon the crown surface, and match holding the upper and lower ends of intermediate section of
25 holder 40 with hand may move the present invention up

and down on the crown surface for removing the dental plaque therefrom. The use of the present structure for removing the dental plaque from the space between molars represents to remove the dental plaque with lower force without the need of stretching dental flosser horizontally into the mouth, and operation obstacle may be avoided for holder will not touch the crown surface on the other side.

10 Referring to FIG. 8, the present invention not only is very convenient for removing the dental plaque within molar area 25 but also has significant effect of removing the dental plaque within incisor area 20 and canine area 21; referring to FIG. 8, there has no problem
15 arising from obstacle to operation because dental flosser may be operated within incisor area 20 and canine area 21 when the mouth is open and holder 40 stays outside the mouth. The largest action force produced by special contact angle and operation end horizontally
20 stretching forward according to the present invention makes it easy for removing the dental plaque incisor and canine.



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What is claimed is:

1. A dental flosser including a holder and an operation end keeping a contact angle with said holder, said operation end having a horizontal section on the fronted; said operation end formed by said holder in connection with two ribs to resemble an arch, and a floss mounted between said two ribs, and said floss being perpendicular to said holder.

2. The dental flosser as claimed in claim 1, contact angle between said holder and operation end preferred around 150 - 170 degrees.

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