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2,117,844

DENTAL INSTRUMENT

Filed July 9, 1937

Fig. 1.

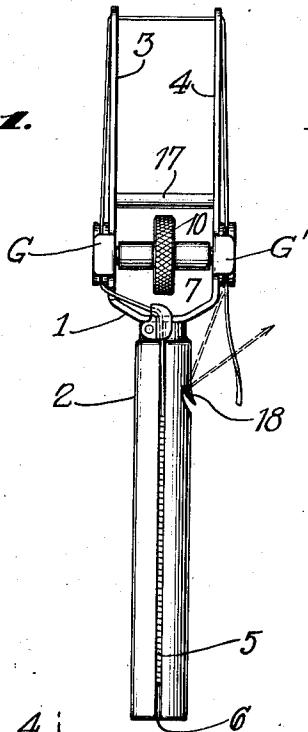


Fig. 2.

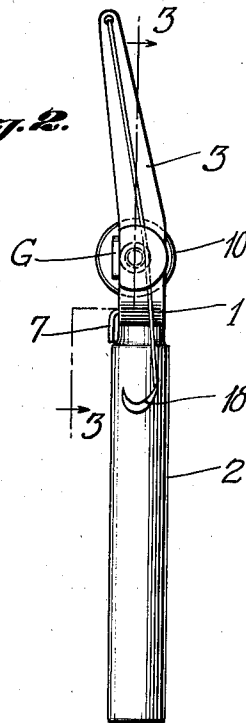


Fig. 3.

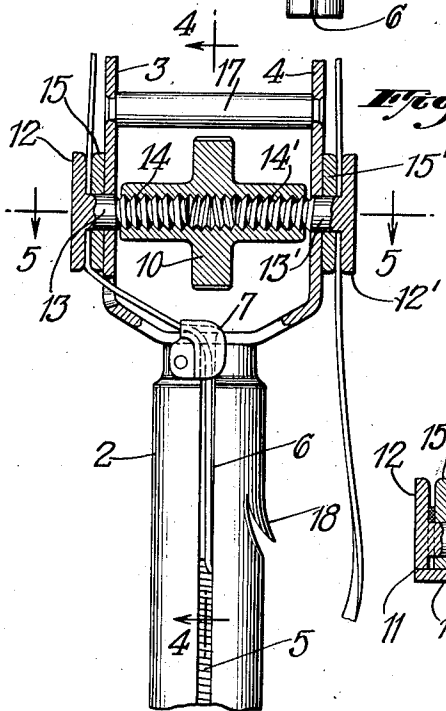


Fig. 4.

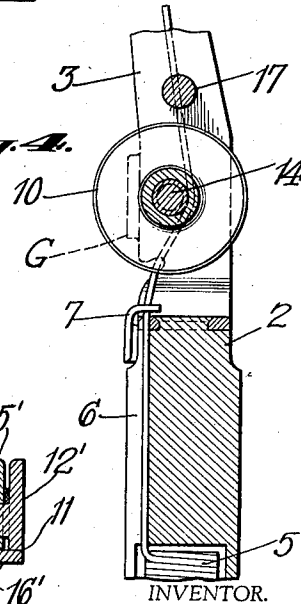
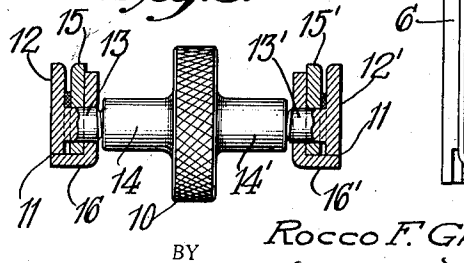


Fig. 5.



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DENTAL INSTRUMENT

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Application July 9, 1937, Serial No. 152,678

5 Claims. (Cl. 132-92)

This invention relates to dental instruments and more particularly to tooth cleaning implements and has for its object the provision of an instrument having utility in cleaning between teeth. Another object is to provide a satisfactory holder for dental floss adapted to effectively present a length of floss under suitable tension and in a manner adapted to permit the said length to be inserted between and to be withdrawn from between the teeth. Another object is to provide a dental floss holder device adapted for personal or professional use. Other objects and advantages will be apparent as the invention is more fully disclosed.

In accordance with these objects I have devised a dental floss holder device for use as a tooth cleaning implement of which the following, taken in connection with the accompanying drawing, is a full and complete description. In the drawing Fig. 1 is an elevational view of the device of the present invention; Fig. 2 is a second elevational view; Fig. 3 is an enlarged sectional view along plane 3-3 of Fig. 2; Fig. 4 is an enlarged view along plane 4-4 of Fig. 3; and Fig. 5 is an enlarged view along plane 5-5 of Fig. 3.

Referring to the drawing, the present invention comprises a yoke 1 provided with a handle 2, the yoke arms 3 and 4 being angularly disposed with respect to the handle 2. Aligned orifices are provided in the ends of arms 3 and 4 and means are provided to rotatively mount a spool 5 of dental floss in or upon the handle or adjacent the bottom of the yoke 1 and to conduct the unwinding end of the floss from the spool to the ends of arms 3 and 4 and through the aligned openings provided in said ends. Means are also provided on each arm 3 and 4 to engage or grip the floss as it passes to and after coming from the said aligned openings to effectively restrain the length of floss suspended between the arms 3 and 4 against longitudinal movement.

In the specific embodiment illustrated in Figs. 1 to 5 inclusive the yoke 1 and handle 2 may be identified as a two-pronged fork member with the yoke arms or prongs 3 and 4 angularly disposed with respect to handle 2. Handle 2 is preferably an open ended tubular member provided with a longitudinal slit or slot 6 extending to adjacent the base of the yoke 1. I have found this arrangement very suitable for the insertion of spool 5 within the handle 1 as the unwinding end of the floss from spool 5 may thus be readily slipped into slot 6 during the insertion of the spool 5. By catching this end upon spring clip member 7 spool 5 may be left floating in handle 2 free to rotate therein when the end of the floss is subjected to pulling stresses. When spool 5 is emptied of floss it drops out of handle 2 by gravity and a new spool 5 may readily be inserted. The exterior contour of handle 2 should be such

as to adapt the handle to be readily gripped in the palm of the hand.

From spring clip member 7, I pass the floss through gripping means generally identified in Fig. 1 by letter G and thence through the aligned orifices in the ends of arms 3 and 4 back to a similar gripping means identified by letter G'. The two gripping means G and G' are actuated from a common turn buckle type element identified in Fig. 1 by numeral 10.

The structural features of gripping means G and G' are illustrated more fully in Figs. 3 to 5 inclusive, and comprise spindles provided with a head 12-12', a bearing section 13-13' and a threaded shank section 14-14'. Threaded shank sections 14-14' are provided with opposite threading (right or left hand threads) respectively and nut 10 is provided with aligned threaded openings in opposite sides to engage the threaded sections 14-14'. The outer periphery of nut 10 is shaped and adapted to facilitate turning of the nut manually about the axis of the aligned openings. Thus by restraining the spindles from rotation a rotation of nut 10 will cause the spindles to move axially towards or away from each other as the case may be.

Aligned openings are provided in arms 3 and 4 below the first mentioned aligned openings, which are adapted to permit the journal seating therein of bearing sections 13-13' of the spindles with head sections 12-12' adjacent the outer surface of arms 3 and 4, and with the threaded sections 14-14' abutting each other substantially as shown, and washers 15-15' are loosely mounted on the spindle bearing sections adjacent the head sections 12-12' and intermediate the head sections and the arms 3 and 4. Means such as extensions 16-16' on arms 3 and 4 respectively engaging flattened portions 11-11' of head sections 12-12' are provided to restrain the spindles from being rotated upon rotation of nut 10, thereby insuring axial movement of the said spindles towards and away from each other.

The length of floss passing to and returning from the ends of arms 3 and 4 is disposed in the space gap between the head section 12-12' of said spindles and washers 15-15' and is firmly gripped therebetween upon axial movement of the spindles towards each other. Spring clip member 7 applies tension to the floss when a pulling stress is applied at the end. This tension is retained by the gripping action of the spindles against washers 15-15'.

To prevent any distortion in the prongs 3 and 4 upon axial movement of screws 11-11' I provide brace member 17 which prevents any spreading or contracting of the ends of the prongs 3 and 4. I also provide cutter means 18 to provide for the breaking off of used lengths of the floss.

Whereas I have illustrated as one specific embodiment a tubular hollow handle 1 and a per-

manent attachment of the handle 1 to the yoke, it would obviously not be a departure from the present invention to provide any other shape of hollow handle or to provide a detachable arrangement of these parts.

The advantages of the present invention are many. The device is adapted for private or professional use particularly because of the sanitary features of the same and the ease of manipulation of the device in the arranging for successive clean lengths of floss between the prong ends and in the inserting of the length between the teeth.

Having described the present invention and given one specific embodiment of the same it is apparent that many modifications and changes may be made therein without departing essentially from the nature and scope thereof, and all such modifications and changes are contemplated as may fall within the scope of the following claims.

What I claim is:—

1. A tooth-cleaning implement comprising a yoke member having a base and two parallel spaced arms, a handle attached to the said base, means to rotatively sustain a spool of dental floss within said handle, aligned openings in the ends of said arms, means to conduct the unwinding floss from the handle through said aligned openings, and means to frictionally engage the said floss as it passes to and comes from the said aligned openings to restrain the length of floss suspended between the said arms from longitudinal movement, said means comprising axially aligned spindles journaled in said arms adjacent the base, each of said spindles having threaded ends and a head, the head of the said spindles being disposed adjacent the outer surface of the said arms and the threaded sections extending inwardly and closely abutting each other, the said threaded ends being provided with right and left hand threads respectively, a nut provided with aligned threaded recesses adapted to engage said oppositely threaded ends in a turn buckle arrangement, a floating washer loosely mounted on each said spindle adjacent said head and interposed between said head and the outer surface of said arm, and means to restrain the said spindle from rotation upon rotation of said nut.

2. In the combination of claim 1, an open ended tubular handle provided with a longitudinal slot extending from the open end to adjacent the opposite end and a spring clip member adjacent the said opposite end, the inside diameter of said handle being adapted to permit the insertion therein of said spool of dental floss, the said slot being adapted to permit the unwinding floss to run freely therethrough and the said spring clip member being adapted to frictionally engage the said unwinding floss to restrain the said spool from being gravitationally displaced from within the said handle.

3. A tooth-cleaning implement comprising a yoke member having a base and two parallel spaced arms, a handle attached to the said base, means to rotatively sustain a spool of dental floss within said handle, aligned openings in the ends of said arms, means to conduct the unwinding floss from the handle through said aligned openings, and means to frictionally engage the said floss as it passes to and comes from the said aligned openings to restrain the length of floss

suspended between the said arms from longitudinal movement, said means comprising a pair of spindles journaled in axial alignment in said arms below said aligned openings in the ends of the arms but in substantial parallel spaced relation thereto axially, the abutting ends of said spindles being threaded, the threading on one being opposite to the threading on the other, a nut member having opposite threaded openings adapted to engage said threaded ends of the spindles in a substantially turn-buckle engagement, means to restrain said spindles from rotation with rotation of said nut and means on the outer ends of said spindles to frictionally engage the said floss upon axial movement of the spindles towards each other and to release said frictional engagement upon reverse axial movement of the said spindles.

4. A tooth-cleaning implement comprising a yoke member having a base and two parallel spaced arms, a handle attached to the said base, means to rotatively sustain a spool of dental floss within said handle, aligned openings in the ends of said arms, means to conduct the unwinding floss from the handle through said aligned openings, and means to frictionally engage the said floss as it passes to and comes from the said aligned openings to restrain the length of floss suspended between the said arms from longitudinal movement, said means comprising a pair of spindles journaled in axial alignment in said arms below said aligned openings in the ends of the arms but in substantial parallel spaced relation thereto axially, the abutting ends of said spindles being threaded, the threading on one being opposite to the threading on the other, a nut member having opposite threaded openings adapted to engage said threaded ends of the spindles in a substantially turn-buckle engagement, means to restrain said spindles from rotation with rotation of said nut and a head on each outer end of said spindle disposed adjacent the outer face of the arm through which the spindle is journaled, a washer loosely disposed on said spindle intermediate the said head and said arm with a space gap between said head and washer adapted to receive said floss, the adjacent surfaces of said head and washer being adapted to grip the said floss therebetween upon axial movement of the spindles towards each other.

5. A tooth-cleaning implement comprising a two pronged fork member provided with an open ended hollow handle adapted to be gripped with the palm of a hand said handle being slotted longitudinally from the open end to adjacent the closed end to which the prongs are attached and having an internal diameter adapted to permit a spool of dental floss to be rotatively disposed therein with the unwinding end of the floss passing freely through said slot, a spring clip member adjacent the closed end of the slot adapted to frictionally engage the said unwinding floss and to restrain the said spool from falling out of said hollow handle, aligned openings in the ends of said prongs adapted to threadedly receive said floss and to sustain a length of floss between said prong ends, and means operative by a common actuating member to frictionally engage the said floss before passing to one of the openings and after passing from the other of said openings to restrain said length of floss between the openings in said prong ends from axial movement.

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