

[54] **DENTAL CLEANING DEVICE**

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[51] Int. Cl. **A61c 12/00**

[58] Field of Search **132/91, 92 R, 92 A**

[56] **References Cited**

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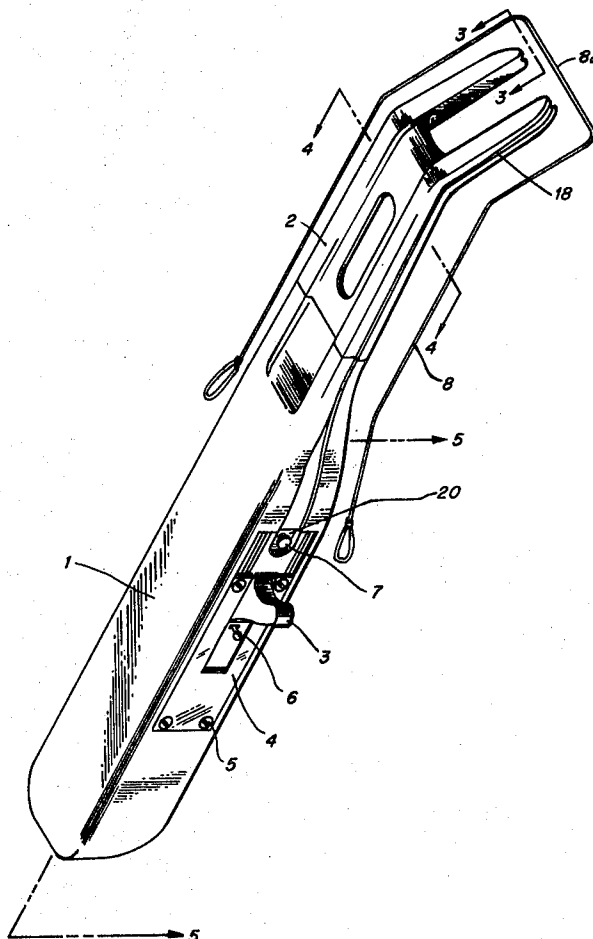
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[57] **ABSTRACT**

Apparatus for holding and tightening a flexible cord for dental cleaning, comprising a handle having a detachable yoke for tautly supporting a run of said cord and a pair of anchor pins carried by the handle, one of which is attached to a reciprocable trigger mounted in the handle for tensioning the cord.

1 Claim, 8 Drawing Figures



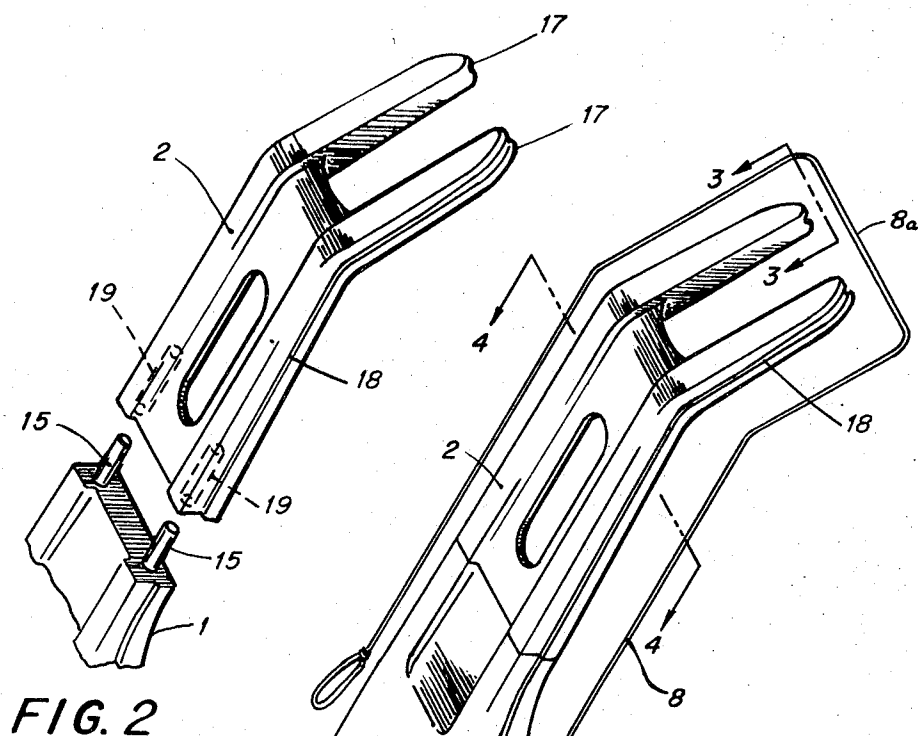


FIG. 2

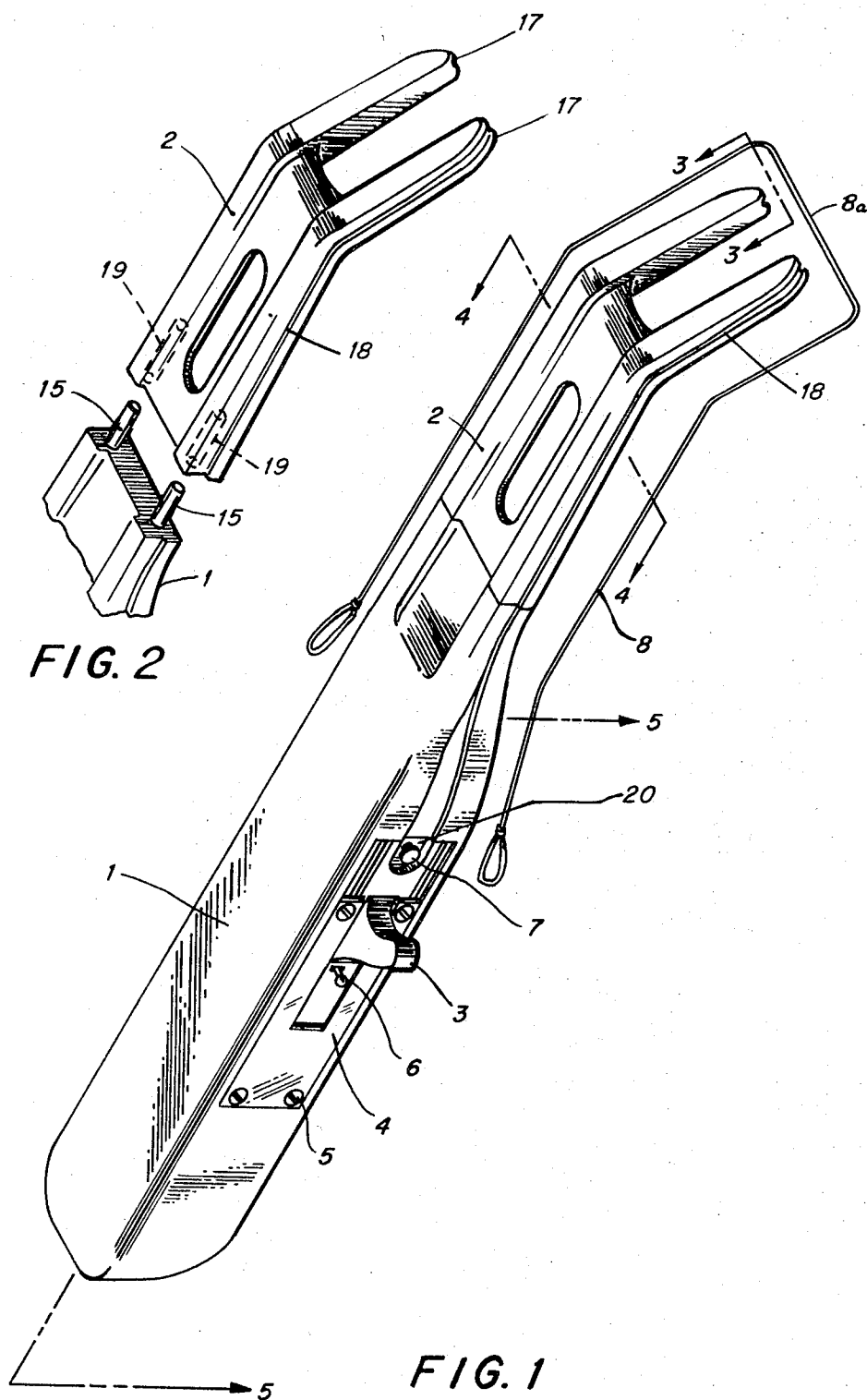


FIG. 1

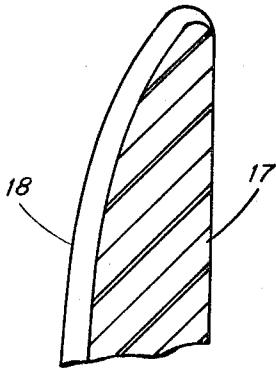


FIG. 6

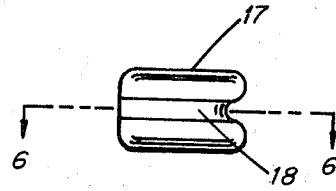


FIG. 3

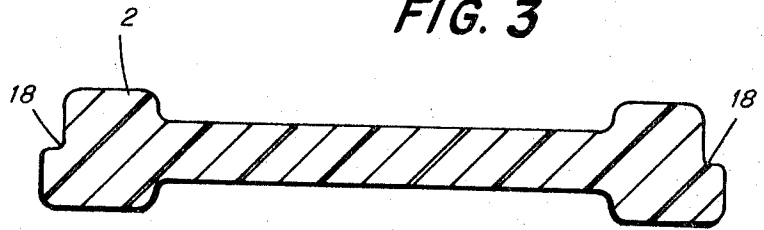


FIG. 4

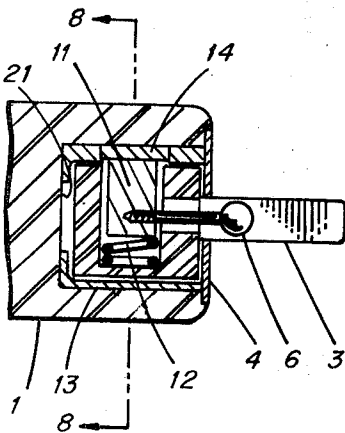


FIG. 7

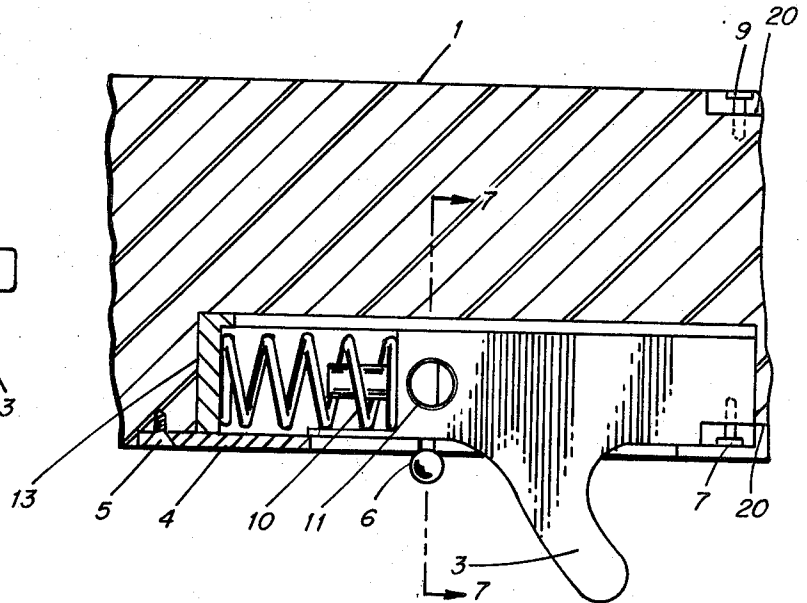


FIG. 5

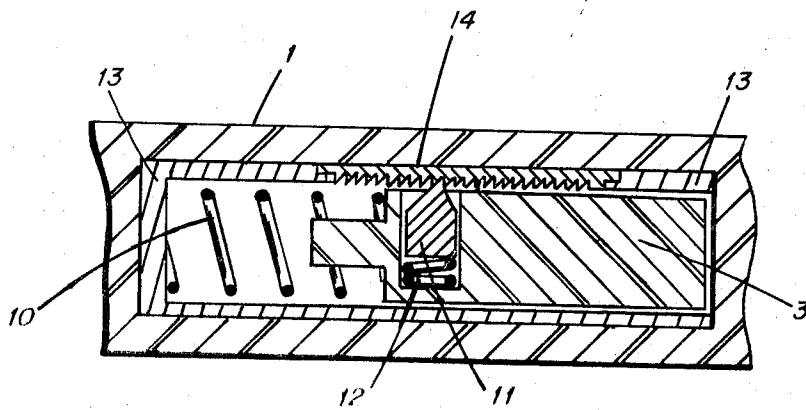


FIG. 8

DENTAL CLEANING DEVICE

Cleaning of the dental interstices is best and most efficiently accomplished with a string-like material such as dental floss which is forced between the teeth and moved back and forth in a manner designed to pry out and dislodge food particles which cannot be removed by the more conventional brushing means.

By its very nature, the dental floss, tape, or chosen material must be held at each of its ends to put tension in the material in order that it will have the rigidity to perform its function. Keeping the floss tight or in tension usually requires that several fingers be inserted into the mouth and, when reaching for teeth in the back of the mouth, the chore is both tedious and inefficient.

To overcome this problem, the prior art has developed several holding devices which are designed to keep the dental floss taut without the use of fingers. These devices, for the most part, however, are encumbered with complex winding and reeling mechanisms, tensioning devices and vibrators which unnecessarily complicate the device and at the same time render it less useful.

It is therefore the object of this invention to provide an efficient and simply constructed dental floss holder which can provide maximum sanitation.

Another object of the invention is to provide a device of the type described which has detachable tip yokes so that each member of a family, for example, could own and use his own tip, but with a common handle and tensioning element.

Other and further objects, features and advantages of the invention will become apparent upon a reading of the following description of a preferred form of the invention taken together with the accompanying drawings in which:

FIG. 1 is a perspective view of the dental cleaning device of the present invention showing a length of dental floss exploded away from its normal mounted position around the yoke or tip of the device.

FIG. 2 is a fragmentary view of the cleaning device showing the tip or yoke removed from the handle portion.

FIG. 3 is an end view of one finger of the end yoke.

FIG. 4 is a cross-sectional view of the yoke taken along lines 4—4 of FIG. 1.

FIG. 5 is an enlarged fragmentary cross-sectional view taken along lines 5—5 of FIG. 1.

FIG. 6 is an enlarged fragmentary, cross-sectional view of the end of one of the yoke fingers taken along lines 6—6 of FIG. 3.

FIG. 7 is an enlarged fragmentary, cross-sectional view taken along lines 7—7 of FIG. 5.

FIG. 8 is an enlarged fragmentary, cross-sectional view taken along lines 8—8 of FIG. 7.

The dental floss holder of the present invention is seen best in perspective in FIG. 1. The holder is composed primarily of two basic parts, a handle 1 and a detachable tip or yoke 2. A tensioning device is included in the construction of the handle 1, which will subsequently be described in detail.

As shown in FIG. 2, the tip or yoke 2 is detachably mounted to the end of the handle 1 by means of a pair of mounting studs 15 which are rigidly connected to the end of the handle 1. The studs are adapted to be inserted into mating holes or bores 19 in the end of the

yoke 2. The tip 2 has a body portion having a pair of protruding fingers 17 which form a yoke across which is carried a run of dental floss 8a. The fingers 17 of the yoke 2 are sized and adapted to span a tooth so that the run 8a of dental floss may be inserted into the dental interstices and moved from side to side in the same manner as if the dental floss were efficiently held by hand.

The fingers 17 of the yoke 2 are preferably constructed of a smooth non-porous material which is easy to clean and has no cracks or crevices for the collection of food particles or other dirt. Along the lateral outside surfaces of the yoke 2 is formed a small channel 18 into which the dental floss is laid. The channel maintains the floss in position on the yoke.

As best seen in FIG. 1, the channel 18 is continuous from the yoke 2 into the sides of the handle 1, terminating in a recess 20 in the side of the handle in which is mounted attachment pins or studs 7 and 9 on the two sides respectively. The dental floss may be connected to the pins 7 and 9 by forming a knotted loop in each end of the length of dental floss and placed the loop over the pins 7 and 9.

The length of the dental floss should be slightly longer than the distance from one pin around the course defined by the channel 18 to the other pin in order to allow for proper tensioning. As shown in FIG. 5, the one pin 9 is stationary, it being mounted rigidly to the handle 1. The other pin 7 is a movable tensioning pin which is positioned rearwardly of its normal position by finger pressure on the trigger 3. The body of the trigger 3 serves as the mounting platform for the pin 7 so as the trigger 3 is moved rearwardly the pin 7 pulls tension on the strand of dental floss 8.

The trigger 3 is slidably mounted within a frame 13 which is disposed within an appropriate recess 21 in the handle 1. The top surface 14 of the frame 13 is provided with ratchet teeth which engage a pawl 11, mounted for vertical movement within the trigger 3. A biasing spring 12 provides a normal force to the pawl urging it into engagement with the teeth of the ratchet plate 14. As the trigger 3 is moved rearwardly against the force of the trigger compression spring 10, the pawl 11 rides easily over the teeth on the ratchet plate 14, however, the pawl prevents the trigger from moving forward when trigger pressure is removed, thus keeping the dental floss taut. To remove the tension on the dental floss, the pawl is pushed out of its position of engagement with the teeth by finger pressure on the ratchet release knob 6. A plate 4 maintains the trigger assembly within the recess 21, secured in place by fasteners 5.

I claim:

1. Apparatus for holding and tightening a flexible cord for dental cleaning comprising:
 - a handle having a lateral recess;
 - a detachable yoke carried by the handle;
 - pin means carried by said handle for anchoring a length of said cord;
 - a reciprocable trigger disposed in the said lateral recess and mounting one of said pin means so that tension in the said cord may be adjusted by movement of the trigger;
 - a rack having ratchet teeth disposed in said recess;
 - a reciprocable pawl carried by said trigger and positioned to engage the teeth of said rack to secure the trigger in a selected position; and
 - release means protruding from the said handle recess and attached to said pawl for disengaging the pawl from the said ratchet teeth and to permit movement of the trigger without interference from the ratchet teeth.

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