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TEETH CLEANING DEVICE

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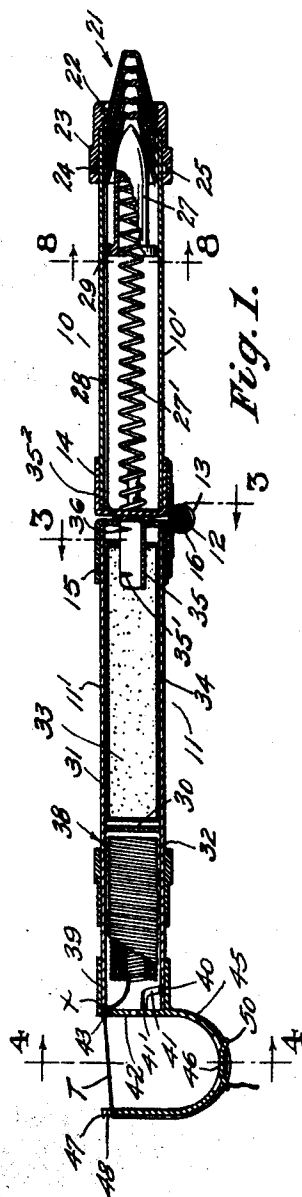


Fig. 1.

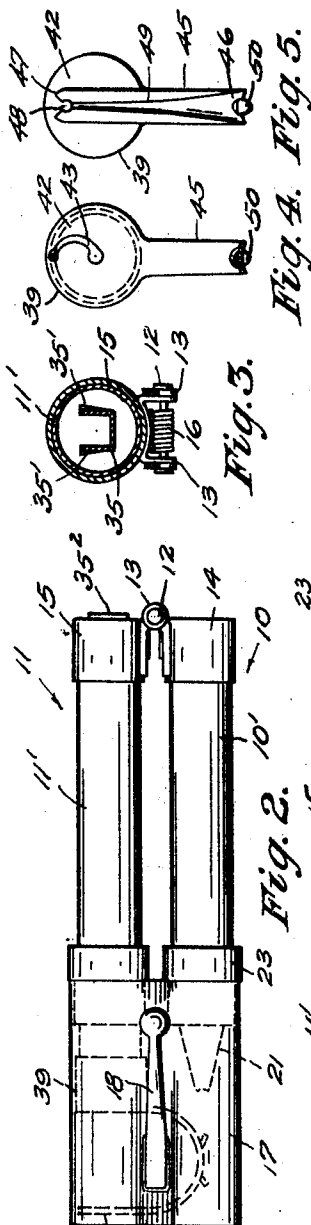


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

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TEETH-CLEANING DEVICE.

Application filed September 28, 1926. Serial No. 138,185.

This invention relates to dental devices and specifically to improvements to the teeth cleaning device shown and described in United States Patent No. 1,553,818, issued to me September 15, 1925; and the object of the present invention, is to perfect the construction of said device in various particulars, to render it more efficient in operation, more conveniently adjustable, and, generally, extend its usefulness.

More specific objects and advantages of the invention will appear in the following description.

The invention consists in the novel construction, adaptation and combination of parts hereinafter described and claimed.

In the accompanying drawing, Figure 1 is a central longitudinal section of a dental device embodying my improvements and illustrated in its extended position for use.

Fig. 2 is a side elevation of the same shown in its folded position and including a cap member. Figs. 3 and 4 are transverse sections on the lines 3—3 and 4—4, respectively, of Fig. 1. Fig. 5 is an end elevation of Fig. 1. Fig. 6 is a side elevation of a portion of one of the casing members. Fig. 7 is a perspective view of the cap-feed shown detached. Fig. 8 is a transverse section on the line 8—8 of Fig. 1.

The present invention like that shown in the patent above referred to is provided with a casing comprising two tubular companion members 10 and 11 which are foldably connected with each other by means of a hinge pin 12 extending through apertured lugs 13 of ferrule elements 14 and 15 provided for the inner ends of the respective members. In the improved construction is a coil spring 16 which is mounted upon the hinge pin 12 for yieldingly retaining the casing members in aligned relation with respect to each other as represented in Fig. 1.

Such aligned or extended condition of the casing is that in which it is employed. For releasably retaining said casing in its folded position, see Fig. 2, so as to be conveniently carried in a person's pocket, I provide a hollow cover 17 which is engageable over the outer ends of both of the casing members.

This cover 17 also serves as a sheath to exclude dirt and protect the floss thread and the abrading caps to be hereinafter described from becoming soiled and mutilated. A clip

tageously used to engage the edge of a person's pocket when the device is to be carried within the latter.

The ferrules 14 and 15 are detachably connected to the peripheral walls 10¹ and 11¹, or tubes, as hereinafter termed, of the respective casing members as by means of a bayonet joint as shown with reference to the member 11 in Fig. 6, wherein the ferrule 15, represented by dotted lines in this view, is provided with a stud 19 operable in an angularly arranged slot of the tube 11¹. More particularly, said slot comprises a portion 20 disposed longitudinally of the casing to admit the stud into an end of the slot portion 20¹ which extends helically about the tube 11—whence an endwise movement of the ferrule is effected by rotating the same.

The member 10 is designed to serve as a receptacle for a plurality of caps 21 of substantially truncated conical shape which are nested one within the other as shown at the right hand side of Fig. 1. These caps are of stiff paper or other material suitable for cleaning a person's teeth by an abrading action to remove food, tartar, etc., therefrom. The outermost of said caps is held in position to protrude from the member 10 by having the peripheral edges of the respective caps engaged within the groove of a screw thread 22 provided interiorly of a sleeve 23 which is connected to the casing tube 10¹ for rotary movement. The sleeve, or cap-feed as hereinafter designated, is mounted upon the member 10 and is connected thereto by means of a stud 24 of the member taking in an endless groove 25 provided within the inner periphery of the cap feed and located in a plane at right angles to the axis thereof.

As shown in Fig. 7, the groove 25 communicates with the end of a groove 26 extending helically of the cap-feed to serve as a way for the passage of the stud 24 into and from the groove 25 whereby the sleeve is detachable from the tube 10¹ for the insertion of a supply of caps 21 within the device.

27 represents a follower which is urged axially forward by means of a spring 27¹ to retain the caps within the member 10 in positions to be engaged successively by the cap-feed. 28 represents a spline rigid with the tube 10¹ and extending through a notch 29 (Fig. 8) of the follower to prevent the rotation of the latter; and the caps, in turn, are held from turning by frictional engagement

with the follower and each other to permit the rotatory movement of the cap-feed to act through the instrumentality of its screw thread to impart advance movement to the caps.

The second casing member 11 has its tubular element 11¹ divided by a partition 30 into inner and outer chambers 31 and 32, respectively. Said inner chamber 31 constitutes a receptacle for a quantity of material, preferably in powder form, suitable for use as a mouth wash or as a throat gargle to sweeten one's breath.

This material, indicated by 33 in Fig. 1, is desirably contained within a paper capsule 34 and is removed from an end thereof by means of a scoop shaped dispenser 35 which is mounted, like a drawer, for reciprocatory movement in an aperture provided in the ferrule end. The outward travel of the dispenser 35 is limited by protuberances 35¹ thereof engageable with the inner surface of the ferrule end wall; its inward travel is limited by the relatively large front end 35² of the dispenser encountering the outer surface of said ferrule wall.

When the device as a whole is in its extended Fig. 1 position, the end of the ferrule 14 bears against the dispenser. To prevent the accidental withdrawal of the dispenser when the device is in its folded Fig. 2 position, the side walls of the dispenser have out-sets, as at 36, Fig. 1, to afford shoulders which may be pulled through the ferrule aperture when accommodated by an inward flexing of the side walls of the dispenser.

The chamber 32 of the member 11 provides a receptacle for a spool 38 of linen thread, or an equivalent, to serve as a dental floss. A ferrule 39 is detachably connected to the outer end of the tube element 11¹ by means of a bayonet joint. This bayonet connection is similar to that illustrated in Fig. 6 with reference to the ferrule 15, and comprises a stud 40 (Fig. 1) provided on the peripheral wall of the ferrule operable in the helical portion 41 of an angular slot provided in the tubular wall 11¹.

Said slot portion 41 communicates from one of its ends with a slot portion 41¹ permitting the passage of the stud 40 for the removal of the ferrule for replacing exhausted spools of floss within the casing as may be required.

The slot portion 41 and the stud 40 are, moreover, disposed in such relation that the turning of the ferrule in one rotary direction will cause the ferrule and its wall 42 (Fig. 4) to be brought against the extremity of the tube 11¹ and when turned in the opposite rotary direction cause said end wall 42 to recede from the tube.

The ferrule end 42 is provided with slot 43 which extends from near the axis of the ferrule in a curved direction, substantially as shown in Fig. 4, to within proximity of the

periphery of the ferrule and above the circle of the tube extremity.

By such an arrangement of the ferrule slot, the thread unwound from the spool and passed through the slot, by suitably rotating the ferrule 39, will be lead thereby onto the edge of the tube 11¹—as indicated by X in Fig. 1—to clamp the thread between the ferrule and the casing tube.

The axial or clamping movement of the ferrule is effected by the movement of the stud 40 in the helical portion 41 of the casing slot. 45 is an arm extending from the diametrically opposite side of the ferrule from the outer end of the slot 43. This arm is provided with a return bend 46 and terminates in an arm portion which is disposed at right angles, or nearly so, to the axis of the member 11. The extremity 47 of said arm is provided with a notch 48 to receive the thread T and which extends from said notch in a groove 49 of the arm to a thread belaying cleat 50 provided on the arm, preferably at the bend 46 thereof. The edges of the horn elements of said cleat are desirably sharpened to afford means for cutting off pieces of the thread by drawing the latter along the same.

When not in use, the device is held in its folded position by means of the cover 17 as in Fig. 2. When the cover is removed the spring 12 tends to retain the device extended as in Fig. 1 ready to use for cleaning the teeth.

The part of the thread T between the ferrule 39 and the extremity of the arm 45 is utilized in the interstices between teeth to remove food and other matter therefrom. After being used the ferrule 39 is given a rotary movement to release the ferrule from its engaged relation with the thread at X.

The thread is then pulled from the chamber 32 to string a clean section between the arm and ferrule, whereupon the latter is turned into clamping position, and the thread outside of the casing drawn taut and secured to the cleat 50, the surplus thread being severed and thrown away.

The caps 21 are projected to prevent the outermost one into position for cleaning and polishing teeth by turning the cap-feed 23 as above described. The mouth cleansing preparation 33 is delivered from the casing when the latter is folded so as to permit the dispenser 35 being withdrawn into its delivery position.

What I claim, is:—

1. In a toilet article, the combination with a tubular casing having an open end and adapted to serve as a receptacle for dental-floss thread, said casing being provided in its periphery with a slot disposed helically of the casing, of a ferrule serving as a closure for the open end of said casing and having a stud engageable within the casing slot, said ferrule being provided with a slot extending from the central portion thereof into proxim-

ity of its periphery whereby the turning of the ferrule in one rotary direction will lead the thread into position to be clamped between the ferrule and the casing end through the action of said stud in the helical slot of the casing.

2. In a toilet article, in combination, a casing provided with two tubular members hingedly connected to each other for arranging the same in relatively aligned and folded positions, one of said members having open ends and divided into two compartments, one of said compartments serving as a dental-floss thread receptacle and the other compartment for the reception of a container, closures for the open ends of said compartments, the closure for the thread compartment having a thread delivery aperture, and a dispenser mounted for reciprocatory movement in the closure for the container compartment, said dispenser being adapted to be positively held by the casing itself in its inoperative position when the casing members are in aligned relation with each other.

3. In a toilet article as defined in claim 2 wherein a spring is employed for yieldably retaining the members in their aligned relation, and a means for retaining said members in side by side relation permitting the operating of the dispenser.

4. In a toilet article, in combination, a casing having a compartment which is open at one end, said compartment being adapted to receive a container of mouth cleansing material, an apertured closure for the open end of the compartment, a material dispenser slidably mounted in the aperture of said clo-

sure, means provided upon the dispenser and engageable with said closure for limiting the movement of said dispenser, and means provided upon the dispenser and engageable with the closure for yieldably retaining the dispenser in its inoperative position.

5. In a toilet article, a tubular casing member having an open end and adapted to contain a plurality of tooth cleaning caps, a cap-feeding device rotatably connected to the open end of said member, and spring pressed means provided within said member for supplying caps to the cap-feeding device.

6. In a toilet article, as defined in claim 5, wherein the casing member is provided with a stud, and the cap-feeding device is provided interiorly with a peripheral groove located in a plane at right angles to the axis of said device to afford a way for said stud permitting rotary movement to the device, and a branch groove extending from the aforesaid groove for the passage of the stud in the removal and replacement of the device with respect to the casing member.

7. In a toilet article, a tubular casing member having an open end and adapted to contain a plurality of tooth cleaning caps, and a cap-feeding device rotatably mounted upon the open end of said member and operatively connected thereto by means of screw threads whereby a turning movement of the device in one rotary direction will protrude the caps progressively from the casing member.

Signed at Seattle, Washington, this 15 day of September 1920.

FREDERICK T. HOPE.