June 1, 1937. O. A. NETSCHKE 2,082,256

MECHANICAL MOVEMENT

Filed April 13, 1935

FIG. 1.

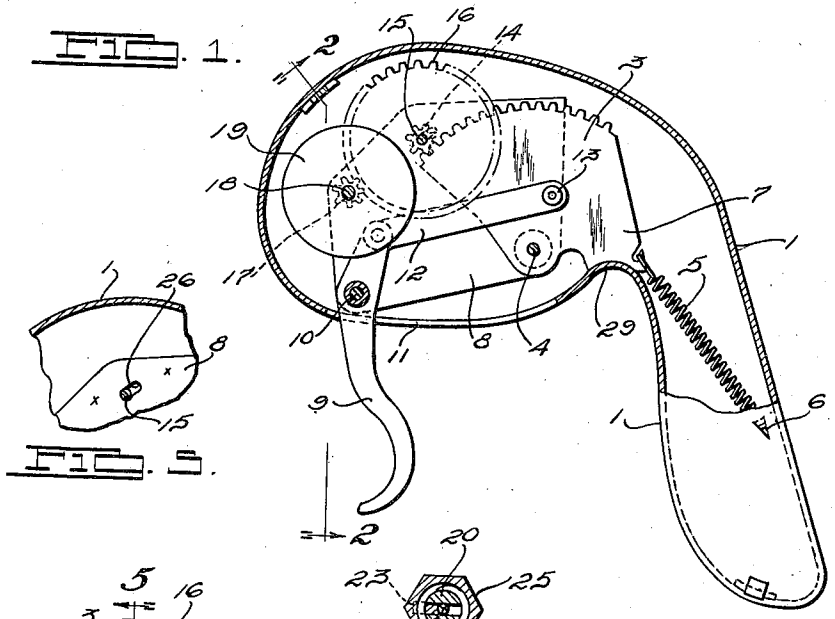


FIG. 5.

FIG. 4.

FIG. 3.

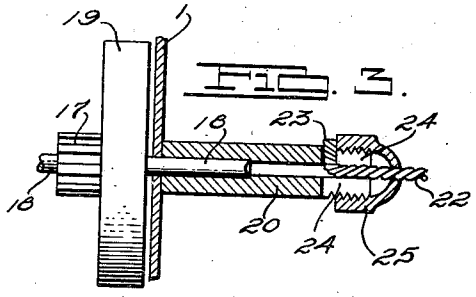
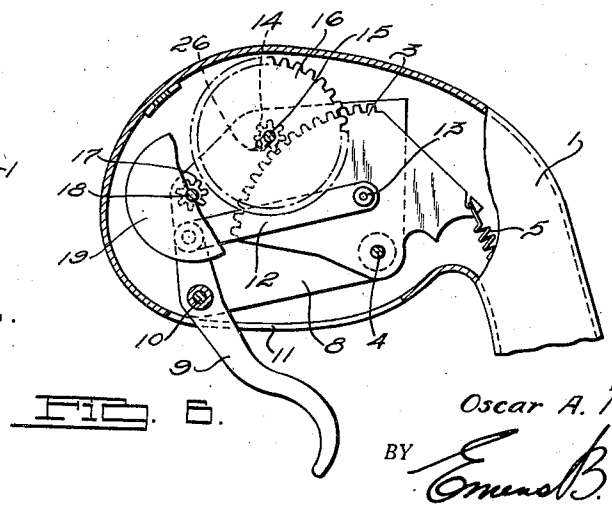


FIG. 2.

FIG. 6.



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MECHANICAL MOVEMENT

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Application April 13, 1935, Serial No. 16,119

1 Claim. (Cl. 74—133)

This invention relates to rotary tooth brushes and the object of the invention is to provide a rotary tooth brush including a handle and trigger whereby operation of the trigger will rotate the brush.

Another object of the invention is to provide a rotary tooth brush including a sheet metal member shaped to fit the hand and having a trigger extending therefrom, the trigger being connected through gearing to the brush whereby the brush may be rotated at a fairly high rate of speed by operation of the trigger.

Another object of the invention is to provide a rotary tooth brush in which the brush is rotated only in one direction by pulling the trigger, the gearing being so arranged as to disconnect the drive upon return movement of the trigger.

A further object of the invention is to provide a simple and novel means whereby the brush may be removed or replaced and locked in position.

These objects and the several novel features of the invention are hereinafter more fully described and claimed and the preferred form of construction by which these objects are attained is shown in the accompanying drawing in which—

Fig. 1 is a view of the rotary tooth brush mechanism with the housing cover removed.

Fig. 2 is an enlarged section taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged section taken on line 3—3 of Fig. 2.

Fig. 4 is an enlarged section taken on line 4—4 of Fig. 2.

Fig. 5 is an enlarged section taken on line 5—5 of Fig. 2.

Fig. 6 is a view illustrating the return stroke of the trigger.

As shown in Figs. 1, 2 and 6 a housing 1 is provided which encloses the rotating mechanism. This housing 1 is preferably made in two parts so as to allow ready assembly of the mechanism within the housing. A gear segment 3 is provided which is pivotally mounted on the pivot 4 in the housing and a spring 5 connects the end 7 of the gear segment 3 with the lug 6 in the housing in order to pull the gear segment over against the stop portion 29 of the housing 1, the end 7 being shaped to fit this portion of the housing. A supporting plate 8 is provided for the gearing mechanism as will be understood from Figs. 1, 2, 5 and 6 and a trigger 9 is pivotally mounted on the pivot 10 in the housing. This trigger 9 extends through the slot 11 in the housing and at the upper end is connected by means of a link 12 to the pin 13 on the gear segment 3. By this arrangement, movement of the trigger will move the gear segment.

The gear segment 3 meshes with a pinion 14 of the shaft 15 and a gear 16 is secured to this shaft 15 as shown in Figs. 1, 2 and 6. The gear 16 meshes with a pinion 17 on the shaft 18 and a small fly-wheel 19 is also secured to this shaft. The shaft 18, as shown in Fig. 2, extends through the housing and a brush support 20 in the form of a tube is pressed onto the outer end of the shaft 18, as shown in Fig. 3. The rotary brush 21, shown in Fig. 2, is provided with a wire core 22 and the end 23 of this wire core 22 is bent at a right angle as shown in Fig. 3 and fits in a slot 24 cut into the outer threaded end of the supporting member 20, as shown in Figs. 3 and 4. The nut 25 which has been previously slipped over the end 23 and portion 22 of the brush is then threaded onto the threaded end of the support member 20 and bindingly engages the end 23 in the bottom of the slot thus securing the brush in place and preventing the brush from rotating in relation to the member 20.

As will be noted in Figs. 5 and 6, the shaft 15 of the gear 16 rides in a slot 26 in the plate 8 and housing. There are slots provided in the housing for both ends of this shaft 15 and when the trigger 9 is pulled back in the position shown in Fig. 1 the gear segment is pulled forward and pushes the gear 16 into mesh with the pinion 17 so that on this stroke of the trigger the brush is rotated in one direction. Upon the release or return stroke of the trigger shown in Fig. 6, the gear segment 3 is moved in a clockwise direction thus pushing the shaft 15 to the opposite end of the slot 26 and bringing the gear 16 out of mesh with the pinion 17. Upon again pulling the trigger, the gear 16 is again moved in mesh with the pinion 17 and thus by continuously pulling and releasing the trigger the brush may be rotated at a fairly high rate of speed. Due to the fly-wheel 19 the brush is kept in rotation when it meets the resistance of brushing and during return movement of the trigger until power is again applied upon the next stroke of the trigger. The housing may be readily held in the hand to allow operation of the trigger and the brush may be moved into the mouth to brush the surface of the teeth. It will be noted that the brush axis will be held horizontally and consequently the surfaces of the teeth will be brushed vertically and the handle may be re-

versed in position to allow use of the brush on one side or the other of the mouth.

From the foregoing description it becomes evident that the device is very simple and efficient in operation, provides a handy compact device for rotating the brush and provides a device which accomplishes the objects described.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

In a rotary tooth brush mechanism, a housing formed to provide a head and a handle extending at an angle to the head, the housing being formed to provide an indented portion between the handle and the head, a gear segment pivotally mounted in the head and having an extension arranged to seat on said indented portion, a coiled spring connected to the extension and extending into the handle, the handle being provided with a lug and the spring being connected to the lug and to the extension to normally hold the extension on the housing indentation, a trigger pivotally mounted in the head, a link pivotally connected to the trigger and to the gear segment whereby the gear segment may be turned by turning movement of the trigger, a shaft rotatably mounted in the head and extending therefrom, a fly-wheel secured to said shaft within the housing, a gear reduction mechanism between the shaft and the gear segment, the axis of one of the gears being movable and the arrangement being such that movement of the gear segment in one direction moves the movable gear to position to rotate the shaft and movement of the gear segment in the opposite direction disengages the movable gear from the shaft.

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