

Dec. 1, 1953

S. YUSKO

2,660,745

OSCILLATING TOOTHBRUSH

Filed Sept. 19, 1952

Fig. 1

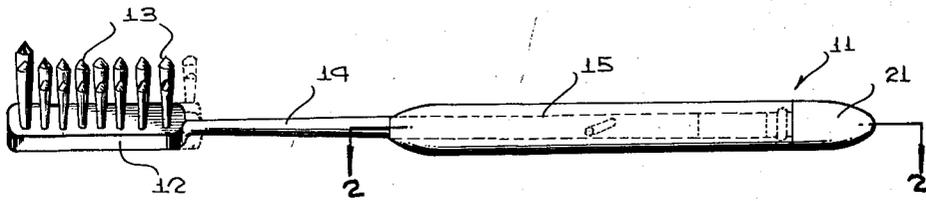


Fig. 2

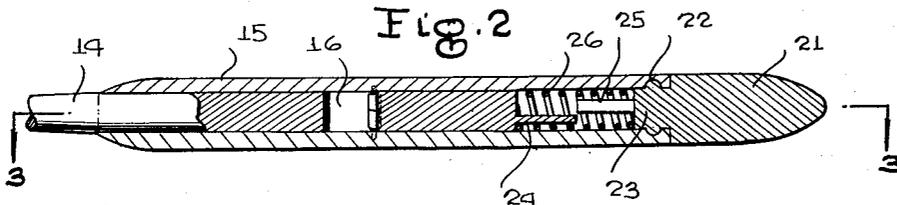


Fig. 3

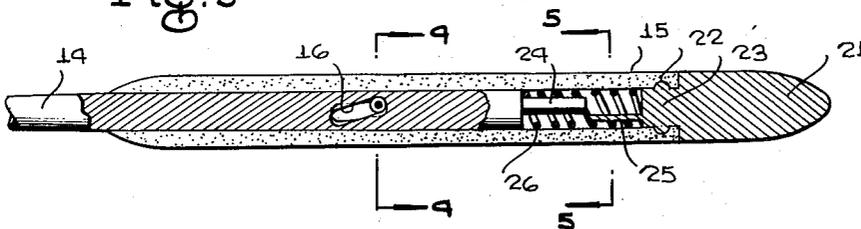


Fig. 4

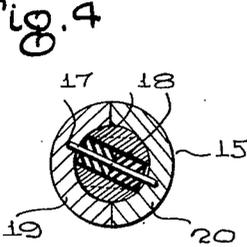


Fig. 5

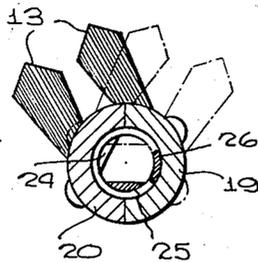
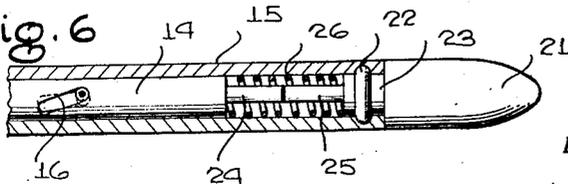


Fig. 6



INVENTOR.  
STANLEY YUSKO  
BY

Mc Morrow, Bertram & Davidson  
ATTORNEYS

# UNITED STATES PATENT OFFICE

2,660,745

## OSCILLATING TOOTHBRUSH

Stanley Yusko, Danville, Va.

Application September 19, 1952, Serial No. 310,384

3 Claims. (Cl. 15-22)

1

This invention relates to toothbrushes, and more particularly to a toothbrush having a rotary head which is automatically oscillated responsive to the normal use of the toothbrush.

A main object of the invention is to provide a novel and improved toothbrush provided with means for automatically oscillating the bristle-carrying head thereof when the handle of the toothbrush is longitudinally reciprocated during brushing of the teeth, the improved toothbrush being simple in construction, being compact in size, and involving only a few parts.

A further object of the invention is to provide an improved toothbrush having an oscillatory bristle-carrying head which is automatically oscillated responsive to the longitudinal reciprocation of the toothbrush during brushing of the teeth, the improved toothbrush being inexpensive to manufacture, being sturdy in construction, and providing an improved healthful massaging action on the teeth and gums of the user.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view of an improved oscillating toothbrush constructed in accordance with the present invention.

Figure 2 is an enlarged cross sectional detail view taken through the handle portion of the toothbrush on the line 2-2 of Figure 1.

Figure 3 is a cross sectional view taken on the line 3-3 of Figure 2.

Figure 4 is an enlarged transverse vertical cross sectional view taken on the line 4-4 of Figure 3.

Figure 5 is an enlarged transverse vertical cross sectional view taken on the line 5-5 of Figure 3.

Figure 6 is a fragmentary longitudinal vertical cross sectional view of the end portion of the handle of the toothbrush of Figures 1 to 3, showing the knob element on said handle portion rotated into locking position, whereby oscillation of the bristle-carrying head of the toothbrush is prevented.

Referring to the drawings, the toothbrush is designated generally at 11 and comprises an elongated brush head 12 having a series of bristle tufts 13 arranged longitudinally on one side thereof. Integrally formed on the head 12 and extending substantially axially thereof is the shank 14 which is slidably and rotatably received in a tubular handle 15. The shank portion 14 is formed with a substantially helical slot 16,

2

and extending through said slot is the transverse pin member 17 secured in diametrically extending position inside the handle 15. Rotatably mounted on the pin member 17 are a plurality of rollers 18 which are in rolling contact with the slot 16, whereby the shank 14 is rotated relative to the handle 15 responsive to longitudinal movement of said shank in the handle, because of the camming cooperation of the helical slot 16 with the rollers 18.

As shown in Figure 4, the handle 15 may be formed of two longitudinally extending, opposing mating sections 19 and 20 of substantially semi-circular cross sectional shape, said sections being rigidly secured together along their longitudinal edges to define the tubular handle 15.

Designated at 21 is a knob member which is rotatably secured to the end of the tubular handle 15, as by the provision of an annular rib 22 formed on the shank portion 24 of said knob member, said shank portion being received in the end of the handle 15, and the rib 22 being rotatably received in an annular groove formed in the inside wall of the tubular handle 15.

Integrally formed on the inner end of the shank 14 is a longitudinally extending lug 24 which is segment-shaped, as shown in Figure 4, and which is arranged so that its arcuate surface is coaxial with the main body of the shank 14. Integrally formed on the inner end of the shank 23 of knob 21 is a similar segment-shaped lug 25 having its arcuate surface coaxial with the shank 14 and having the same radius as the arcuate surface of the elongated lug 24. Designated at 26 is a coiled spring which is disposed between the end of shank 23 and the opposing end of the shank 14, surrounding the respective lugs 24 and 25 and biasing the shank 14 away from the shank 23. Figures 2 and 3 illustrate the shank 14 at the extreme outwardly moved position thereof relative to the sleeve 15, and it will be noted that the shank 14 may be moved inwardly against the biasing force of spring 26, the lugs 24 and 25 being angularly spaced by a sufficient degree to allow the lug 24 to move inwardly substantially into abutment with the end of shank 23 without engaging the lug 25. However, the knob 21 may be rotated to a position such as shown in Figure 6, whereby the lug 25 opposes longitudinal movement of the lug 24, thus locking the shank 14 against inward movement into the handle 15.

In using the device, with the knob 21 arranged as shown in Figures 2 and 3, the head 12 of the toothbrush is automatically rotated responsive to

3

the longitudinal reciprocation of the shank 14 in the handle 15 as the brush is used in brushing the teeth. Rotation of head 12 occurs because of the camming relationship between the rollers 18 and the helical slot 16, above described. If it is desired to lock the shank 14 against rotation, the knob 21 is merely rotated to a position where- in the end of lug 25 is in opposing, substantially abutting relationship to the end of the lug 24, thus restraining the shank 14 against moving longitudinally in the handle 15 when the brush is used, and thus preventing rotation of the head 12.

While a specific embodiment of an improved automatically oscillating toothbrush has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. An oscillating toothbrush comprising an elongated brush head having a series of bristle tufts arranged longitudinally on one side thereof, a shank rigidly secured to said brush head, a tubular handle slidably receiving said shank, said shank being formed with a substantially helical slot extending therethrough, a transverse member secured in said handle and engaging slidably in said slot, a knob rotatably secured in the end of said handle, spring means in said handle biasing said shank away from said knob, and respective, opposing longitudinally extending abutment elements on said shank and knob, the knob being rotatable to bring said abutment elements at times into longitudinal alignment to prevent longitudinal movement of the shank in said handle.

2. An oscillating toothbrush comprising an

4

elongated brush head having a series of bristle tufts arranged longitudinally on one side thereof, a shank rigidly secured to said brush head, a tubular handle slidably receiving said shank, said shank being formed with a substantially helical slot extending therethrough, a transverse member secured in said handle and engaging slidably in said slot, a knob rotatably secured in the end of said handle, respective opposing longitudinally extending abutment elements on said shank and knob, the knob being rotatable to bring said abutment elements at times into longitudinal alignment to prevent longitudinal movement of the shank in said handle, and a coiled spring surrounding said abutment elements and biasing said shank away from said knob.

3. An oscillating toothbrush comprising an elongated brush head having a series of bristle tufts arranged longitudinally on one side thereof, a shank rigidly secured to said brush head, a tubular handle slidably receiving said shank, said shank being formed with a substantially helical slot extending therethrough, a transverse pin-secured in said handle and extending through said slot, roller means on said pin engaging said slot to rotate the shank responsive to longitudinal movement of the shank relative to the handle, a knob rotatably secured in the end of said handle, respective opposing longitudinally extending abutment elements on said shank and knob, the knob being rotatable to bring said abutment elements at times into longitudinal alignment to prevent longitudinal movement of the shank in said handle, and a coiled spring surrounding said abutment elements and biasing said shank away from said knob.

STANLEY YUSKO.

No references cited.