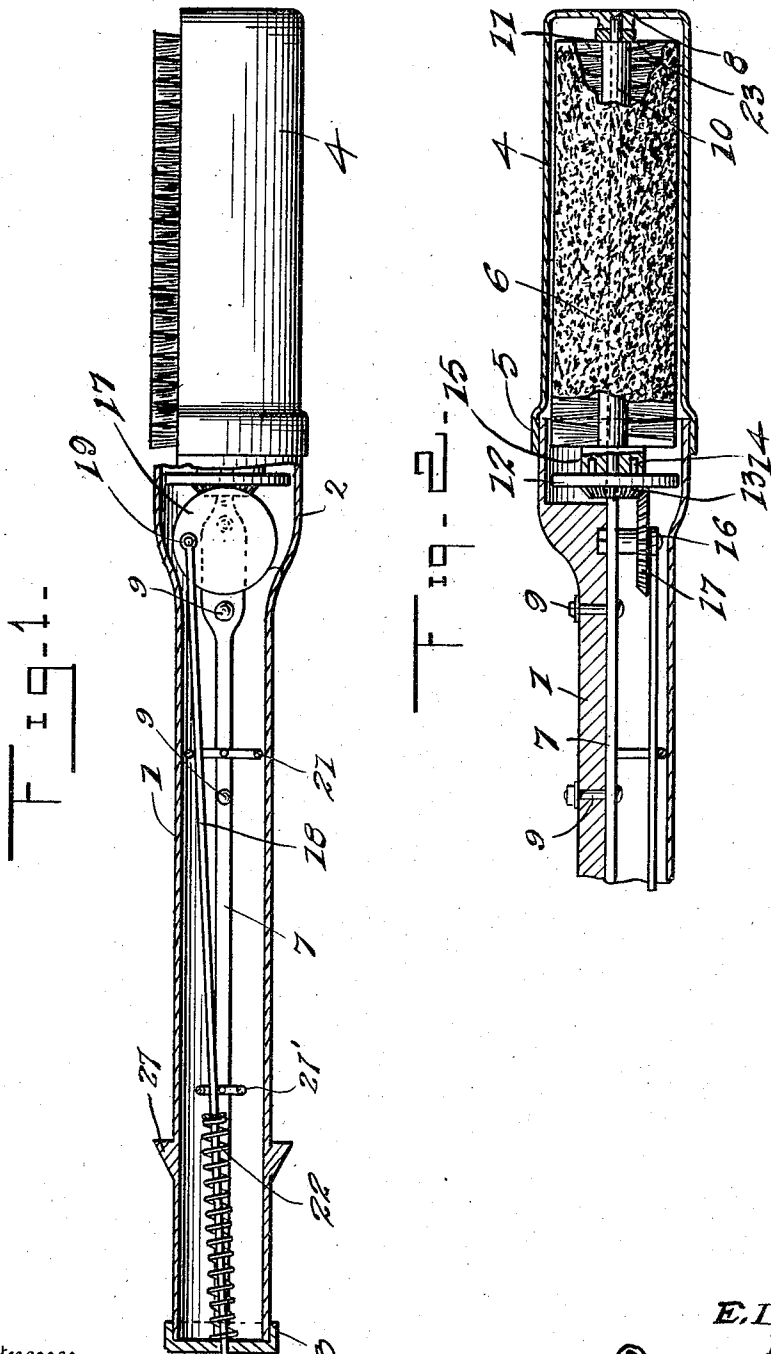


E. L. BEEZLEY & F. LANE.
 OPERATING MECHANISM FOR ROTARY TOOTH BRUSHES.
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UNITED STATES PATENT OFFICE.

ERNEST L. BEEZLEY AND FRANK LANE, OF MOUNT PLEASANT, IOWA.

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Specification of Letters Patent.

Patented Apr. 11, 1916.

Application filed August 5, 1914. Serial No. 855,248.

To all whom it may concern:

Be it known that we, ERNEST L. BEEZLEY and FRANK LANE, citizens of the United States, residing at Mount Pleasant, in the county of Henry and State of Iowa, have invented certain new and useful Improvements in Operating Mechanism for Rotary Tooth-Brushes; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in tooth brushes of the rotary type and resides in the provision of a simple and effective brush that may be operated easily and held in one hand and will serve to provide for an efficient and thorough cleaning of the teeth.

Another important object of our invention is to provide a tooth brush of the character described wherein novel means is employed to operate a rotary brush, said means being mounted within the handle of the brush which is tubular and is operable from the free end of the handle and arranged in such way that a person when holding the brush in his hand may by use of his thumb readily rotate the brush.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification and then more particularly pointed out as claimed.

With reference to the drawings, wherein we have illustrated the preferred embodiment of our invention as it is reduced to practice, and throughout the several views of which similar reference numerals designate corresponding parts, Figure 1 is a side elevation with the handle in section to disclose the operating means, Fig. 2 is a fragmentary longitudinal sectional view taken through the brush showing the brush itself partly broken away and a part of the operating mechanism thereof in top plan instead of side elevation as shown in Fig. 1.

Referring to the drawings by characters of reference, the numeral 1 designates a tubular handle that is formed of any suitable material and provided at one end with an enlarged portion 2. A flanged cap 3 closes the other end of the handle 1. An approximately semi-cylindrical guard 4 having its outer end closed and its inner end enlarged and open as at 5 is secured with said enlarged end 5 in overlapping engagement

with the enlarged portion 2 of the handle 1, to said handle and is designed to partially surround a rotary brush 6 which is mounted within said guard.

A portion of the wall of the tubular handle 1 is increased in thickness interiorly and mounted on said increased portion is a rod 7 which serves as an axle for the rotary brush 6 and extends the full length of the handle and guard of the brush. One end of this rod 7 is positioned within a boss or bearing 8 formed centrally upon the inner face of the closed end of the guard 4 and the other end extends to a point adjacent to the cap 3. Suitable fastening elements 9 are employed to secure the rod 7 to the increased portion of the handle 1. The increasing of the handle on one side disposes the rod 7 approximately centrally within the guard 4 and enables a rigid securing of the rod to the handle.

The rotary brush 6 consists of a tubular body or core 10 that is rotatable upon the axle or rod 7 and has secured thereto and radiating therefrom a plurality of sets of bristles 11 arranged in the usual manner. A circular disk 12 is rotatably mounted upon the rod 7 and disposed within the enlarged part 2 of the handle 1. Mounted also upon the rod 7 is a beveled gear 13 that engages the outer face of the disk 12 and is provided with spaced pins 14 carried thereon and extending at right angles thereto through apertures in the disk 12. These pins 14 project from the opposed face of the disk 12 and are designed to be received within openings in an enlarged head 15 formed on the core 10. These pins 14 prevent movement of the disk 12 relative to the brush and insure positive rotation of the brush as well as the gear 13.

Mounted upon a suitable bearing 16 that is secured to the rod 7 and extends outwardly therefrom is a beveled gear 17 which meshes with the gear 13 and is disposed at right angles thereto. An operating rod 18 is mounted within the tubular handle 1 and pivotally connected as at 19 to one side of the center of the gear 17 at a point adjacent to the periphery of said gear. This operating rod 18 extends outwardly through an aperture in the cap 3 and is provided at its outer end with a head or button 20. Guide rings 21 and 21' are secured to the rod 7 and receive the operating rod 18 so as to prevent accidental derangement of said rod.

A helical expansion spring 22 is secured at one end to the rod 18 and at its outer end to the tubular handle or to some part of the cap 3. The handle 1 is provided with projections 27 adjacent the outer end thereof to prevent slipping of the hand.

In operation the operator grasps the handle 1 in one hand and places his thumb upon the button or head 20 of the rod 18. The exposed part of the brush or rotary element within the guard 4 is placed in position within the mouth and the operator by pressing his thumb to force the rod 18 inwardly imparts a rotary movement to the gear 17 which rotates the gear 13 and disk 12 transmitting a rotary movement to the brush 6. The guard 4 serves to prevent injury by the brush to the gums or other parts of the mouth and leaves exposed only a sufficient amount of the brush to effect an efficient cleaning. The spring 22 returns the operating rod 18 to normal position and it will thus be seen that by pressing the rod 18 inwardly a number of times the brush will be rotated at a speed sufficient to effect a thorough cleaning.

In practice, we have found that the form of our invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of

our device will necessarily vary, we desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to when required, without sacrificing any of the advantages of our invention, as set forth. The various parts of the brush may be made of any suitable materials.

What is claimed is:—

In operating mechanism for rotary tooth brushes, a tubular handle, said handle being enlarged interiorly upon one side thereof, a rod mounted longitudinally upon the enlarged portion of the handle and extending therefrom at one end, a plurality of gear wheels mounted within the handle and operatively connected with each other, an operating rod pivotally connected with one of the gear wheels to one side of the center thereof, guide members carried by said longitudinal rod slidably receiving the operating rod, said operating rod extending outwardly through one end of the handle and a spring connected with the operating rod within the handle and to the handle.

In testimony whereof we affix our signatures in presence of two witnesses.

ERNEST L. BEEZLEY.
FRANK LANE.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."