S. ALEXANDER.

TOOTH BRUSH.

APPLICATION FILED MAR. 28, 1918.

1,318,522. Patented Oct. 14, 1919.

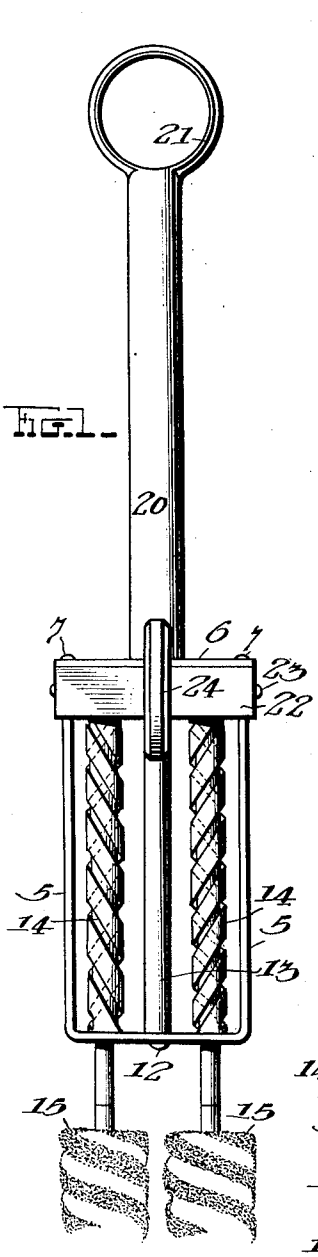


FIG. 1.

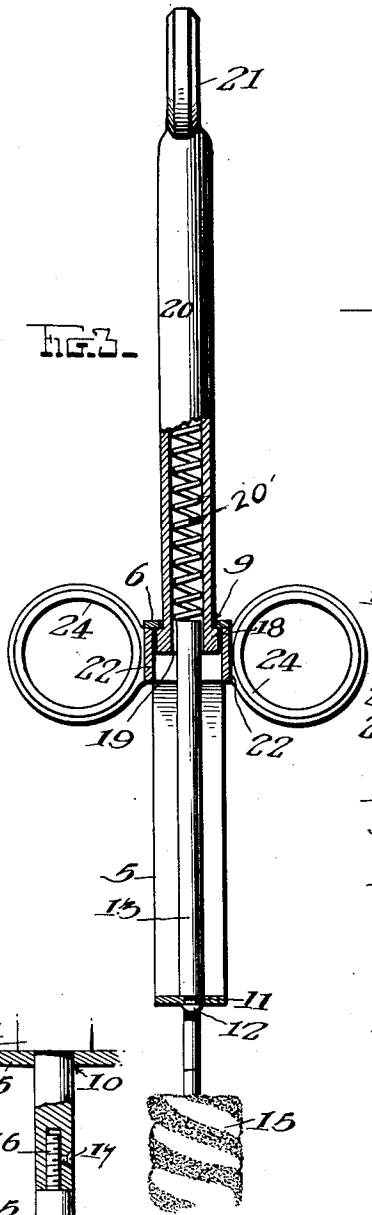


FIG. 3.

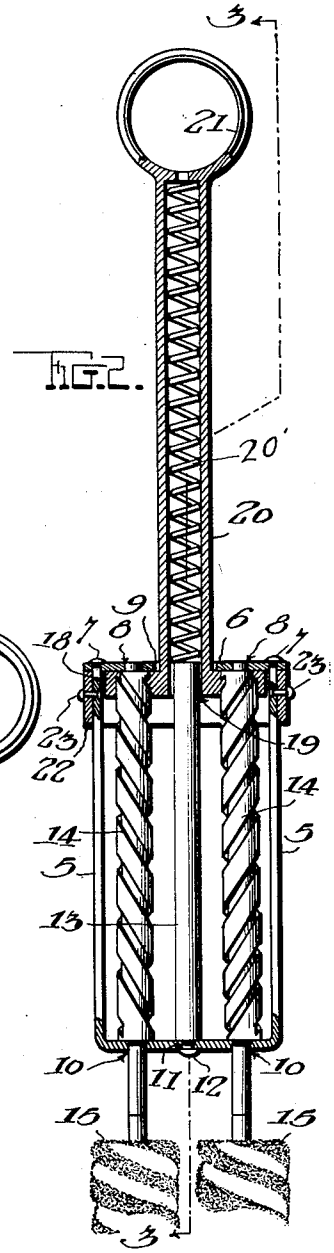


FIG. 2.

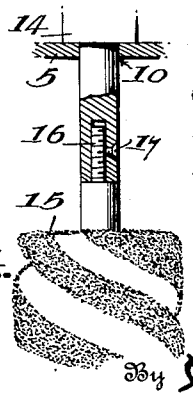


FIG. 4.

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UNITED STATES PATENT OFFICE.

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TOOTH-BRUSH.

1,318,522. Specification of Letters Patent. Patented Oct. 14, 1919.

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To all whom it may concern:

Be it known that I, SOLOMON ALEXANDER, a citizen of the United States, residing at Long Beach, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Tooth-Brushes; and I do 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.

This invention relates to tooth brushes, and it relates more particularly to an improved form of rotary tooth brushes.

One of the objects of this invention is to provide a tooth brush which is thoroughly effective for reaching and scouring cavities, pockets, spaces and recesses in and between the teeth of the user;

A further object is to provide a device of this character in which the scouring movements are directed around the spaces between the teeth, instead of in the direction laterally of the spaces;

Another object is to provide a tooth brush which is operable to effect a movement of the brushes in alternating directions upon the teeth, by the application of external pressure in only one direction;

Another object is to provide a tooth brush of this character which may be easily cleansed and kept in a sanitary condition;

Another object is to provide for cleansing both the inner and outer sides of the teeth simultaneously;

Another object is to provide a device of this character with removable and interchangeable brushes, so that the latter may be renewed without the necessity for renewing the entire device;

Other objects and advantages may become apparent to persons who read the following details of description in connection with the accompanying drawings in which:

Figure 1 is a side elevation of one of my improved tooth scouring devices;

Fig. 2 is a longitudinal sectional view of the same;

Fig. 3 is a longitudinal sectional view taken along the line 3—3 of Fig. 2; and

Fig. 4 is a detail showing the preferred connection of the brushes with the rotary elements which operate them;

Referring to these drawings in detail in which similar reference characters correspond with similar parts throughout the several views, a hollow frame is formed by bending a strip of sheet metal to form a U-shaped element 5, and then connecting the ends of the strip or U-shaped element by means of a plate 6 which is apertured to receive the reduced end portions or rivet elements 7. The plate 6 is also apertured to provide journal bearings 8, and is centrally apertured at 9 for a purpose presently made known.

Strip 5 is apertured to provide journal bearings 10, and is also apertured at 11 to receive the reduced end or rivet element 12 of a rod 13 which extends to and through the central aperture 9 of the plate 6.

A pair of oppositely screw-threaded elements 14 are journaled in the bearings 8 and 10, and each of these rotary elements carries a brush 15. The brushes 15 may be secured to the rotary elements 14 by any appropriate means, but the preferred means is illustrated in Fig. 4 which discloses a screw-threaded connection 16 and locking element or screw 17.

For the purpose of rotating elements 14, I provide an actuating element 18 having internal threads which engage with the threads of elements 14 and is moved longitudinally in the latter so as to effect rotation therein.

The element 18 is provided with a central aperture 19 through which the rod 13 extends.

A tubular operating element 20 is provided with a ring or eye 21 which is adapted to receive a finger or thumb of the user so as to obtain the maximum convenience in reciprocating this element longitudinally through the aperture 9. The elements 18 and 20 may be formed integrally or separately, according to the desire of the manufacturer, and they are rigidly united with one another, so that when the operating member 20 is reciprocated, it imparts a reciprocatory movement to the actuating element 18 and thereby imparts a rotary movement to the elements 14 and 15. As the elements 14 are oppositely screw threaded, it is obvious that the brushes 15 will be rotated simultaneously upon each stroke of the operating and actuating elements in one direction, and that their respective movements will be reversed when the operating and actuating elements are moved in the

opposite direction by means of a spring 20' which is inclosed in the tubular element 20 and bears against the free end of the rod 13.

In order that the frame 5—6 may have the maximum rigidity, and in order to provide the maximum convenience, I provide a second open frame 22, and secure the same to the frame 5—6 by means of rivets 23. On opposite sides of the frame 22 I secure a pair of rings or eyes 24 which are adapted to receive two fingers of the user, so that the device may be conveniently and comfortably held in position for scouring or washing the teeth of the user. It will be seen, therefore, that the device may be operated with one hand, by engaging the rings 24 with two fingers and by pressing the member 20 inward by means of the thumb of that hand, but both hands may be employed when desired.

It will be obvious that when the operating element 20 is pressed inward, the length of the device is materially reduced, so that when the brushes 15 are disconnected at 17, and the element 18—20 is telescoped within the frame 5, the device is reduced to between $\frac{1}{3}$ and $\frac{1}{2}$ of its fully extended length, and therefore the device may be inclosed in a comparatively short casing, for the sake of convenience in carrying the device from place to place.

From the foregoing, it will be seen that I have provided a device which is fully capable of attaining the foregoing objects, and which may be made at a comparatively slight cost.

Although I have described this embodiment of my invention very minutely, it is not intended to limit my invention to these exact details of construction but my invention is subject to minor changes within the scope of the appended claims.

What I claim as my invention is:

1. The combination of a frame, a pair of screw-threaded members journaled axially parallel to one another in said frame, brushes carried by said screw-threaded members, an actuating element engaged with the screw threads of both of said screw-threaded members and being operable to rotate the latter, a tubular operating element effective to reciprocate said actuating element, a compression spring in said tubular operating element, and a rod carried by said frame and operatively connected with said spring so as to move said operating element longitudinally of said screw-threaded members.

2. The combination of a rectangular frame having pairs of bearings in two opposite ends and having an aperture between the bearings of one of said pairs, a rod secured to said frame and having one end extending through said aperture, rotary elements in said bearings on opposite sides of said rod, brushes rotatable by said rotary elements, a tubular operating element extending through said aperture and adapted to receive said rod, a spring in said tubular element and coöperatively connected with said rod so as to move said operating element longitudinally of said rotary elements, and means whereby the longitudinal movement of said tubular operating element effects rotation of said rotary elements.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SOLOMON ALEXANDER.

Witnesses:
C. HASKELL,
PERCY HIGHT.