May 27, 1924. 1,495,732

E. H. GIBB

TOOTHBRUSH

Filed April 17, 1922

Fig. 1.

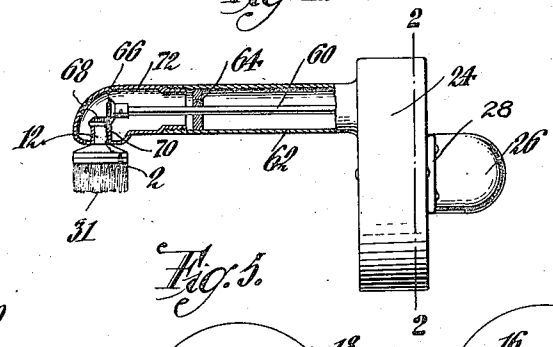


Fig. 4.

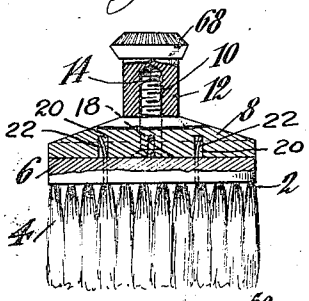


Fig. 5.

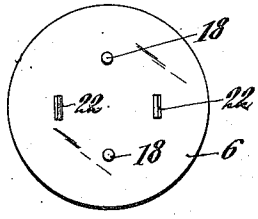
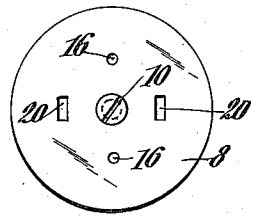


Fig. 6.



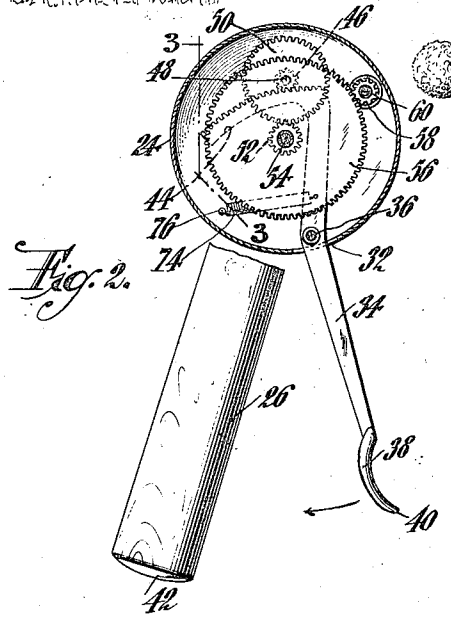


Fig. 2.

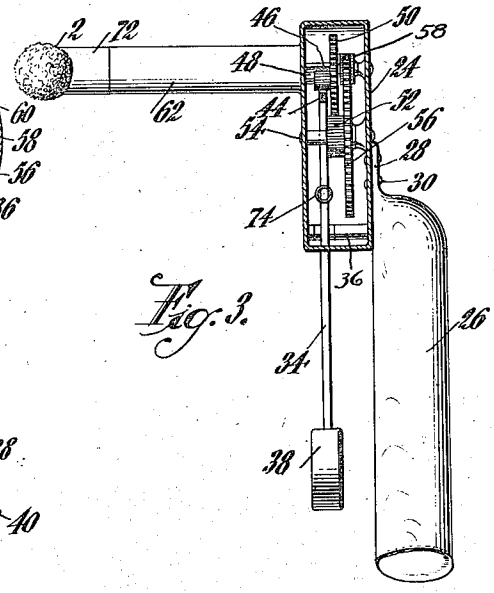


Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWIN H. GIBB, OF NUTLEY, NEW JERSEY.

TOOTHBRUSH.

Application filed April 17, 1922. Serial No. 554,221.

To all whom it may concern:

Be it known that I, EDWIN H. GIBB, a citizen of the United States, and resident of Nutley, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Toothbrushes, of which the following is a specification.

This invention relates to tooth brushes, and particularly to those of the type which are designed to be rotated during their operation upon the teeth.

It is an object of the invention to provide a tooth brush of the aforesaid type which can be very cheaply constructed and which will be generally more satisfactory in its operation than rotary tooth brushes as heretofore constructed.

To this end an important feature of the invention resides in the provision of a handle member and operating means for the brush so constructed and arranged as to enable it to be readily operated in the manner which best suits the user, and with uniform pressure upon the teeth.

A further feature of the invention resides in the provision of improved means for detachably securing the brush to its operating connections.

Other objects and features of the invention will appear as the description proceeds and will be pointed out in the appended claims.

In the drawing in which like reference numerals designate like parts in the various views:

Fig. 1 is a plan view partly in section of a device constructed in accordance with the invention;

Fig. 2 is a side view partly in section along the line 2—2 of Fig. 1;

Fig. 3 is a view in front elevation partly in section along the line 3—3 of Fig. 2;

Fig. 4 is a view partly in section of the brush and the parts with which it is directly connected;

Fig. 5 shows the rear face of the backing of the brush; and

Fig. 6 is a view of the front face of the operating disk for the brush.

The illustrated device comprises a brush designated generally by 2, and consisting of bristles 4 and a backing 6 of suitable character, for example, rubber or rubber composition. The backing 6 is of disk-shape and is carried by an operating disk 8 which is in turn connected by a central screw 10 to a stud-shaft 12, the bore of which is threaded, as indicated at 14, for engagement with the screw 10. The stud-shaft 12 is mounted and operated in a manner which will be hereinafter fully described.

The backing 6 of the brush 2 is attached to the operating disk 8 by means which enables the brush to be firmly held to the disk but to be readily detached therefrom to allow it to be replaced by a new one when rendered unsuitable for further use by reason of wear or other cause. As shown, such means comprises openings 16 in the front face of the disk 8 located at opposite sides of the center of the disk and adapted to receive pins 18 projecting from the rear face of the backing 6. The front face of the operating disk 8 is also provided with elongated slots 20 adapted to receive spring clips 22 also projecting rearwardly from the backing 6. The spring clips 22 are arranged upon opposite sides of the center of the backing and at substantially 90° from the pins 18. The connection between the backing 6 and the disk 8 provided by the pins 18 and openings 16 causes the movements of the operating disk to be transmitted positively to the brush 2, and the spring clips 22 by their frictional engagement in the slots 20 securely hold the brush 2 to the disk 8 while, at the same time, enabling the brush to be very readily withdrawn from or attached to the operating disk.

The frame of the device comprises a drum-shaped casing 24 provided with a depending handle member 26 which, as shown, is formed at its upper end with a flange 28 secured to the right-hand side of the drum casing 24 by rivets or other suitable fastenings 30. As appears most clearly from Fig. 1, the operating race 31 of the brush 2 is, preferably, closely adjacent to a plane extending through the axes of the handle member 26 and the casing 24, and such plane will be hereinafter referred to, for the sake of convenience, as the vertical plane of the handle member, inasmuch as the handle member is arranged to be disposed substantially vertically in the use of the brush 2.

Rearwardly of the vertical plane of the handle member 26, the casing 2 is provided with a peripherally extending slit 32, and an operating lever 34 passes through the slit 32 and is fulcrumed on a transverse rod 36 arranged in the casing 2 adjacent to

the slit. The lever 34 is designed to be operated by a finger of the user, and is, accordingly, provided at its lower end with a finger piece 38. The lower end 40 of the finger piece 38 is located at a level substantially above the level of the lower end 42 of the handle member 26, so as to enable the handle member 26 to be grasped by other fingers of the hand while the lever 34 is operated by engagement of the index finger with the finger piece 38. By reference to Fig. 3, it will also be seen that the lever 34 above the finger piece 38 is spaced from the handle portion 26 by a distance such as to enable one or more of the fingers of the user to be interposed between it and the handle member. From the foregoing, it will be understood that the lever 34 may be operated at the will of the user either by the index finger or any of the other fingers, to suit his inclination or to enable him to avoid the use of a finger which may be injured.

The operating lever 34 is formed at its upper end with a segment rack 44 engaging with a small pinion 46 on a pintle 48 supported in the casing 24, and fixedly associated with the small pinion 46 is a relatively large pinion 50 meshing with a small pinion 52 on a rod 54 located centrally of the casing 24. Also mounted on the rod 54 so as to turn with the small pinion 52 is a larger pinion 56 which meshes in turn with a pinion 58 on a rod 60. The rod 60 passes through a tubular mounting 62 for the rotary brush 2, being journalled in a partition 64 in the mounting and in the wall at the right-hand side of the casing 24. At its end remote from the casing 24, the rod 60 is provided with a gear 66 in driving engagement with a gear 68 on the inner end of the stud-shaft 12 which is journalled for rotation in a sleeve 70 integral with a part of the mounting 62 and extending inwardly therefrom. Preferably, and as shown, such part is in the form of a cap 72 threaded into the outer end of the main section of the mounting. The main section of the mounting 62 may be formed integrally with the casing 24 or may be secured thereto in any desired manner without departing from the principles of the invention.

A spring 74 has one of its ends secured to the operating lever 34 above its fulcrum point 36, and is secured at its other end at the point 76 to the drum-shaped casing 2. The pintle 48 is arranged close to and, preferably, slightly forwardly of the vertical plane of the handle member 26, and the rod 60 and mounting 62 are disposed rearwardly of said plane. The plane defined by the fulcrum rod 36 and the rod 60 is substantially parallel to the vertical plane of the handle member 26.

It will also be noted by reference to Fig. 3 that the gearing for transmitting movement from the lever 34 to the driving rod 60 is contained in the drum-shaped casing 24 between the lever 34 and the handle member 26 thereby enabling the space between the lever 34 and the handle member to be made large enough to receive the fingers of the user without any sacrifice of economy of space in the construction of the device.

If necessary, the gears 66 and 68 may be cleaned by unscrewing the cap 72 from the main section of the mounting 62, then unscrewing the screw 10 from the bore 14 of the stud-shaft 12 and removing the stud-shaft 12 from the inside of the cap 72.

Having fully described the invention, what is claimed is:

1. In a device of the class described, a frame, a rotary brush, a handle member depending from the frame, and an operating member for the brush having a finger piece at its lower end terminating at a level appreciably above the level of the lower end of the handle member and being spaced laterally from the handle member by a distance such as to enable a finger or fingers to be passed between said members, so that in the use of the device the brush may be readily operated either by the index finger of the user or by a finger other than the index finger.

2. In a device of the class described, a casing having a handle projecting radially from one side thereof, a mounting projecting from the opposite side of said casing in offset parallel relation with the casing axis, a rotary brush journaled upon said mounting, manually operable mechanism for rotating said brush housed within the casing and including an operating member projecting exteriorly of the casing, and a driving connection between said mechanism and the brush.

3. In a device of the class described, a casing, a tubular mounting extending from one side of said casing in offset parallel relation to the axis thereof, a rotary brush journaled upon said tubular mounting, operating mechanism for said brush housed within the casing and said mounting, and an operating member for said mechanism positioned in a plane at right angles to the axis of said tubular support and having a part projecting exteriorly through the rim of the casing.

4. In a device of the class described, a mounting, a pinion journalled in said mounting, an operating disk detachably connected with said pinion, a brush comprising a backing member adapted for attachment to said disk, said disk being provided with openings at opposite sides of its axis, and with slots also disposed at opposite sides of its axis and at substantially 90° from said openings, pins

projecting from said backing for engagement with the openings in the disk for positively causing the brush to partake of the rotary movements of the disk, spring metal clips also extending from the backing and arranged for engagement with the slots in the disk, so as to secure the backing frictionally to the disk, and means carried by said mounting for operating the pinion.

In testimony that I claim the foregoing as my invention, I have signed my name hereunder.

EDWIN H. GIBB.