Nov. 18, 1952 J. G. MASON 2,618,161

REVERSIBLE ROTARY TOOTHBRUSH

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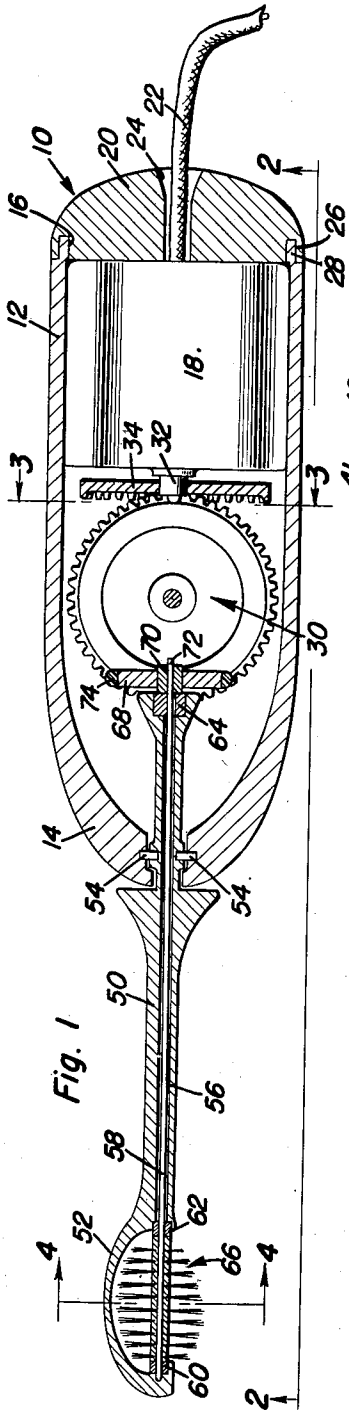


Fig. 1

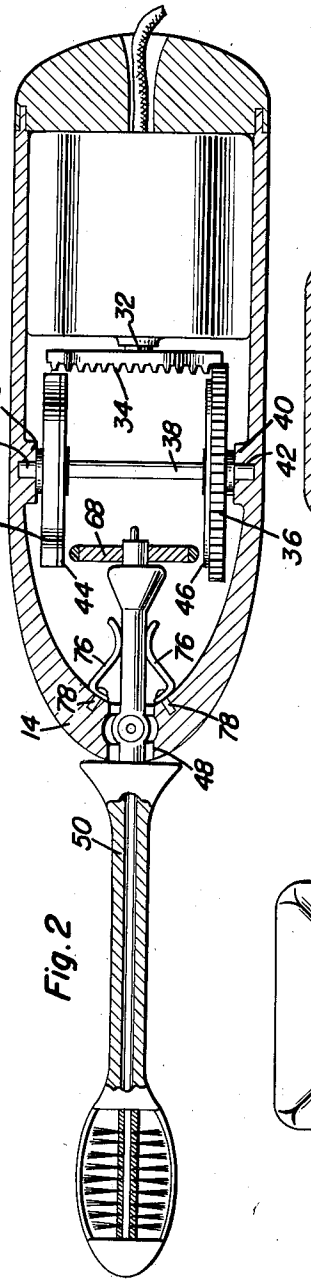


Fig. 2

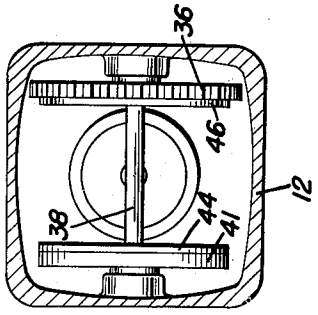


Fig. 3

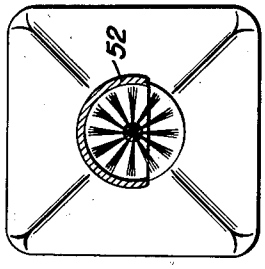


Fig. 4

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REVERSIBLE ROTARY TOOTHBRUSH

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2 Claims. (Cl. 74—202)

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The present invention relates to improvements in tooth brushes and more particularly to electrically operated tooth brushes of the rotary type.

Since the correct method of brushing the teeth consists of rotating the brush in a direction away from the gums, it is an object of this invention to provide such means that provide for rotation of the tooth brush in a direction away from the gums regardless of whether the operator is brushing his upper or lower teeth.

A further object of the present invention is to provide such means that are automatic in operation, but which provide a resilient connection between the electric motor and the brushing means.

The present invention also has for its object to provide such means that are convenient in use, economical in manufacture, relatively simple, and of general superiority in serviceability over the rotary tooth brushes now on the market.

Various other objects and advantages will be apparent from the detailed description to follow. In the description as well as in the claims, parts are at times identified by specific means for convenience, but such nomenclature is intended to be generic in its application to analogous parts as the prior art will permit. My invention is clearly defined in the appended claims.

This form in which I have contemplated applying my invention is illustrated in the accompanying drawings, in which:

Figure 1 is a vertical longitudinal sectional view of the present invention;

Figure 2 is a longitudinal bottom view of the present invention showing parts in section;

Figure 3 is a vertical transverse sectional view taken substantially along line 3—3 showing the interior not in section; and,

Figure 4 is a vertical transverse sectional view taken substantially along line 4—4 of Figure 1.

Referring more particularly to the drawings, wherein like numerals designate like parts throughout, numeral 10 designates generally the electrically operated tooth brush. The tooth brush 10 consists of a casing 12 which is substantially rectangular in cross section and which is provided with a bullet-like nose portion 14 at one end and an opening 16 at its other end. An electric motor 18 is positioned just inside of the opening 16 and has the electric cord 22 passing therefrom out through aperture 24 in the cap 20 secured to the casing 12. The cap 20 is provided with an annular recess 26 which receives the annular projection 28 of the casing providing a desirable connection.

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The gearing means designated generally at 30, consists of a crown gear 34 mounted on the electric motor shaft 32, and a spur gear 36 mounted on a transversely extending shaft 38 which is in turn mounted in the bosses 40 by means of bearing recesses 42. The driving disc 41 is fixedly secured to the shaft 38 at a point remote from the spur gear 36. The inner faces of the spur gear 36 and driving disc 41 are provided with annular friction rings 44 and 46, made of any suitable friction material such as rubber or leather. The annular rings 44 and 46 may be adhesively secured to the disc and spur gear or other conventional means may be used.

A bearing housing 50 which is suitably contoured at 52 for insertion into a person's mouth, is pivotally mounted in the aperture 48 of the bullet-like nose portion 14 of the casing 12 by means of pins 54. The bearing housing 50 is provided with a longitudinal bore 56 for receiving the driven shaft 58. Bearing means 60, 62 and 64 are provided in the bearing housing 50 for supporting the shaft 58. A brush 66 is mounted for rotating movement with the shaft 58 within the contoured portion 52.

A driven disc 68 having a hub portion 70 is fixedly secured to the shaft 58 at 72. The periphery of the disc 68 is provided with an annular friction ring 74 which is adapted, when in contact with either of the friction rings 44 or 46, to convey rotary motions to the shaft 58 from the gearing means 30 and the electric motor 18. A plurality of resilient springs 76 are secured to the inner surface of the bullet-like nose portion 14 by means of pins 78 and yieldingly urge the bearing housing 50 to a normally inoperative position.

When it is desired to use the tooth brush, the electric motor is turned on and the brush portion is provided with suitable tooth paste and inserted into the operator's mouth, vertical movement being imparted to the brush so that when the brush is in contact with the upper teeth, the driven disc 68 will be in contact with one of the friction rings, and when the brush is positioned for brushing the lower set of teeth, the driven disc 68 will be in contact with the other of the friction rings. Since both of the friction rings are operating in the same direction, but are positioned on opposite sides of the pivot disc 68, it naturally follows that the driven disc will be driven in opposite directions depending upon which friction ring is contacted.

Some changes may be made in the construction and arrangement of the parts of my de-

vice without departing from the real purpose of my invention.

Having described the invention, what is claimed as new is:

1. An electrically operated tooth brush comprising: a casing providing a housing for an electric motor, gearing means driven by the electric motor and journaled in the wall of said casing, a bearing housing mounted in one end of said casing for pivotal movement and having a longitudinal bore therein, bearing means in said bearing housing, a shaft mounted in said bearing means and adapted to have a tooth brush secured on one end, said shaft being rotated in one direction when in one position and rotated in the opposite direction when pivoted to a second position, in which said gearing means consists of a crown gear mounted on the shaft of the electric motor, a spur gear meshed with said crown gear and mounted on a transverse shaft journaled in said casing, a driving disk secured to said transverse shaft and oppositely disposed from said spur gear, a driven disc secured to the inner end of the brush shaft, said driven disk alternately engaging said driving disk and said spur gear whereby said brush shaft will be driven in opposite directions when pivoted from one position to a second position, annular friction rings secured to the inner faces of said driving disk and spur gear, and a friction ring on the periphery of said driven disk for frictional engagement with said annular friction rings when said bearing housing is pivoted.

2. An electrically operated tooth brush comprising: a casing providing a housing for an electric motor, gearing means driven by the electric motor and journaled in the wall of said casing, a bearing housing mounted in one end of said casing for pivotal movement and having a longitudinal bore therein, bearing means in said bearing housing, a shaft mounted in said bearing means and adapted to have a tooth brush secured on one end, said shaft being rotated in one direction when in one position and rotated in the opposite direction when pivoted to a second position, in which said gearing means consists of a crown gear mounted on the shaft of the electric motor, a spur gear meshed with said crown gear and mounted on a transverse shaft journaled in said casing, a driving disk secured to said transverse shaft and oppositely disposed from said spur gear, a driven disk secured to the inner end of the brush shaft, said driven disk alternately engaging said driving disk and said spur gear whereby said brush shaft will be driven in opposite directions when pivoted from one position to a second position.

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