June 5, 1934. L. PEREIRA 1,961,243

ROTARY TOOTHBRUSH

Filed June 8, 1932

Fig. 1.

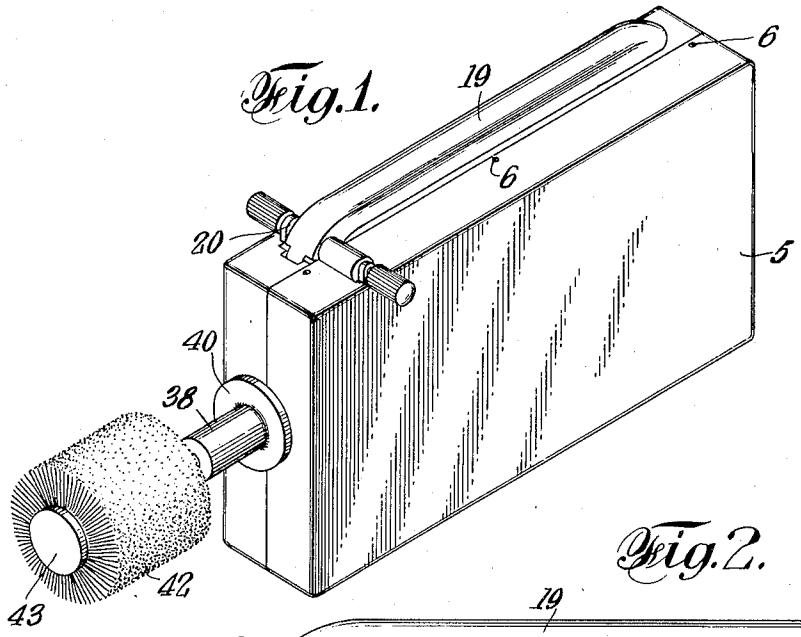


Fig. 2.

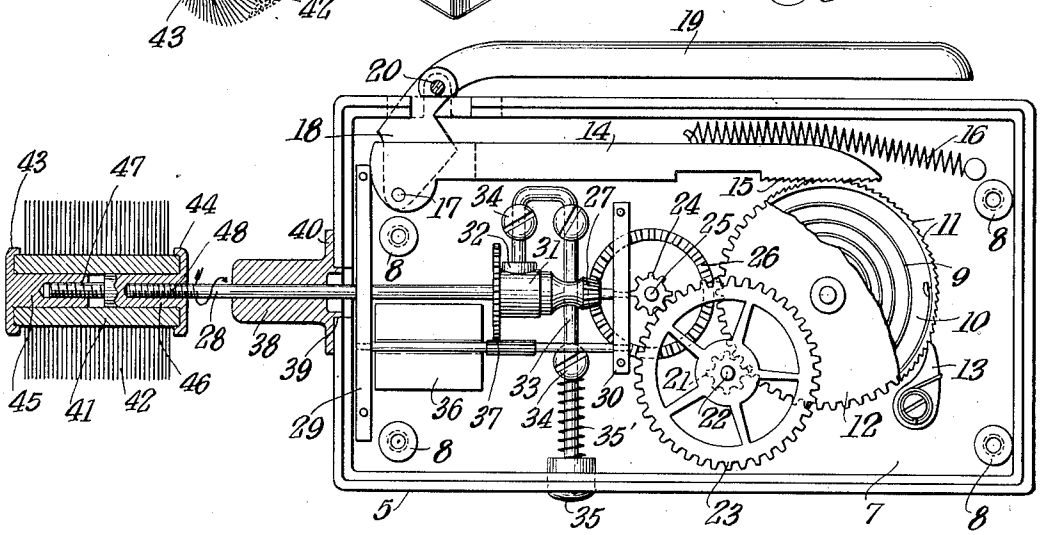
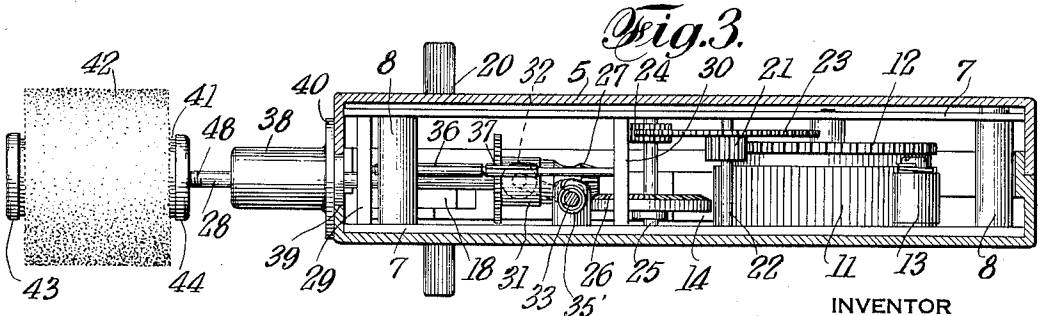


Fig. 3.



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ROTARY TOOTHBRUSH

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Application June 8, 1932, Serial No. 616,032

1 Claim. (Cl. 185—37)

This invention relates to rotary brushes and more specifically to rotary brushes for cleaning teeth, gums, etc.

An important object of this invention is in the provision of a rotary tooth brush operable by a spring motor, the spring of which is wound by manipulation of a lever, the lever being arranged so its free end may be engaged by the fingers of the operator while the casing enclosing the motor rests in the palm of the hand.

Another object is to provide a rotary brush having a brake for the spindle supporting the brush or other abrading or massaging implement and which brake is arranged so it may be operated by the thumb of the operator while held as above described.

A further object is to provide on the spindle of the device, means for removably securing interchangeable implements such as brushes, abrading rolls, massage rolls, etc.

These advantageous features are accomplished by the novel and practical construction, combination and arrangement of parts hereinafter disclosed and illustrated in the accompanying drawing, constituting an essential part of the disclosure, and in which:

Fig. 1 is a perspective view of a preferred embodiment of the invention.

Fig. 2 is a plan view partially in section with one portion of the casing removed, and

Fig. 3 is a side view with the casing in section.

In the drawing 5 represents a two part casing which is of a size to be normally easily held within the hand of an operator. This casing may be suitably shaped for this purpose and may have means such as screws 6 for maintaining the assembly of the casing parts.

The casing 5 is designed to surround a spring motor and attending gearing. This motor is preferably carried by two plates 7 spaced apart by posts 8. Between the plates 5 are mounted the elements of the motor and gearing.

The motor essentially comprises a main spring 9 housed in a barrel 10 formed with ratchet teeth 11 and covered by a primary gear 12. One end of the mainspring is fixed to the ratchet-bearing barrel and the other to the primary gear.

The mainspring is kept from unwinding by a spring-tensioned pawl 13 having engagement with the ratchet teeth 11, and the mainspring is wound by the reciprocating action of a bar 14 provided with teeth 15 having engagement with the ratchet teeth on the barrel. A coil spring such as 16 may be employed to press the teeth 15 into engagement with the teeth 11 and also to pull the bar in its recovery direction as will be seen.

The bar 14 is pivoted at 17 to the downwardly projecting end 18 of an actuating lever 19 pivoted at 20. From the drawing it is apparent that when the free end of the lever 19 is pressed toward the casing the barrel 10 will be rotated to store energy in the mainspring 9, and when this pressure is released the pawl 13 will prevent the unwinding of the mainspring while the coil spring 16 returns the lever to a position where it may be again actuated.

The primary gear 12 is meshed with a primary pinion 21 which is affixed to the same shaft 22 as the secondary gear 23 which in turn meshes with a secondary pinion 24 on the shaft 25. The shaft 25 also carries a bevel gear 26 which meshes with a bevel pinion 27 on the spindle 28. The spindle has bearings in the walls 29 and 30 and is provided with an enlarged boss 31 contactable by a brake shoe 32 carried on the bent rod 33 which is slidably guided in the studs 34. The end of the rod opposite the brake shoe is provided with a button bead 35 which protrudes through an aperture in the casing and a coil spring 35′ is provided to maintain the pressure of the brake shoe against the enlarged boss 31 of the spindle.

From the foregoing it can readily be seen that the stored energy of the mainspring 9 may be converted to high speed rotary motion of the spindle 28 by pressing against the end of the button bead 35 to release the brake shoe 32 from contact with the enlarged bars 31 of the spindle.

To control and regulate the speed of the spindle there may be provided an air governor 36 driven by gearing 37 from the spindle.

To further steady the spindle and to prevent its flexing under undue pressures an elongated bearing 38 is provided. This bearing is piloted at 39 in an aperture formed in the casing and is also provided with a flange 40 which serves to steady it against the mentioned pressures.

A brush may be formed of a tubular member 41 provided with radially set bristles 42 and the brush or other similar implement is proferably clamped between the flanges 43 and 44 of clamp member 45 and 46, each enterable into opposite ends of the implement tube and provided with mating means such as the screw means shown at 47 for locking the implement between the flanges 43 and 44. One of the clamp members may be provided with a screw seat having engagement with the threaded portion 48 of the spindle. It is preferred that this thread be a

right hand thread should the brush rotate in the direction of the arrow so as to eliminate the tendency of the brush to run off the spindle when operating.

This arrangement permits easy removal of the brush for cleansing and also for substituting other brushes as well as other implements such as massage pads etc.

The foregoing is a simple exposition of a preferred embodiment of the invention, its use and utility being quite apparent and while the specification lays stress on the use of the device as a tooth brush, it may also be advantageously employed by jewelers, watchmakers or others for polishing and by replacing the brush with a chuck or tool holder the device may be employed for other purposes where the power stored in a spring motor may be utilized.

From the foregoing it will be seen that a simple device for the purpose has been disclosed in the preferred form of its embodiment, but it is not desired to restrict the details to the exact construction shown, it being obvious that changes, not involving the exercise of invention, may be made without conflicting with the scope of the appended claim.

Having thus described my invention what I claim as new and desire to secufre by Letters Patent, is:

A power unit comprising a two part rectangular casing forming a handle, a spring motor therein, means to store energy in the motor comprising a lever arranged substantially parallel to and fulcrumed outside the casing and having one end within the casing, a slidably reciprocating bar pivoted to the mentioned end within the casing and positioned substantially parallel to the lever, ratchet teeth on the bar, spring means to urge the bar in one direction, a mainspring housing having ratchet teeth engageable with the teeth of the bar, a holding pawl for the housing, a mainspring, a gear train, the primary gear of said train being rotatably urged by one end of the mainspring, a spindle adapted to be driven by the gear train, and means to regulate the speed of the spindle and means to brake the spindle.

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