

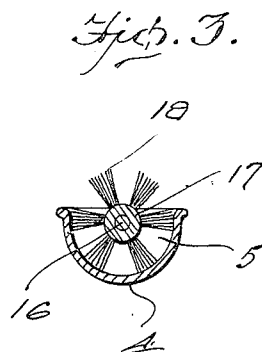
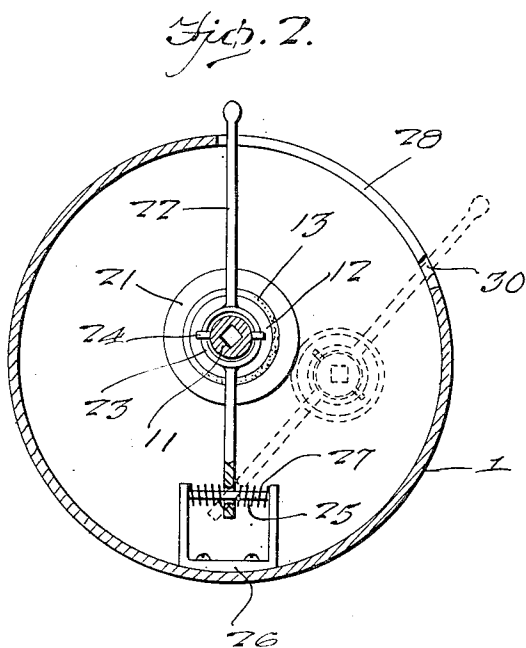
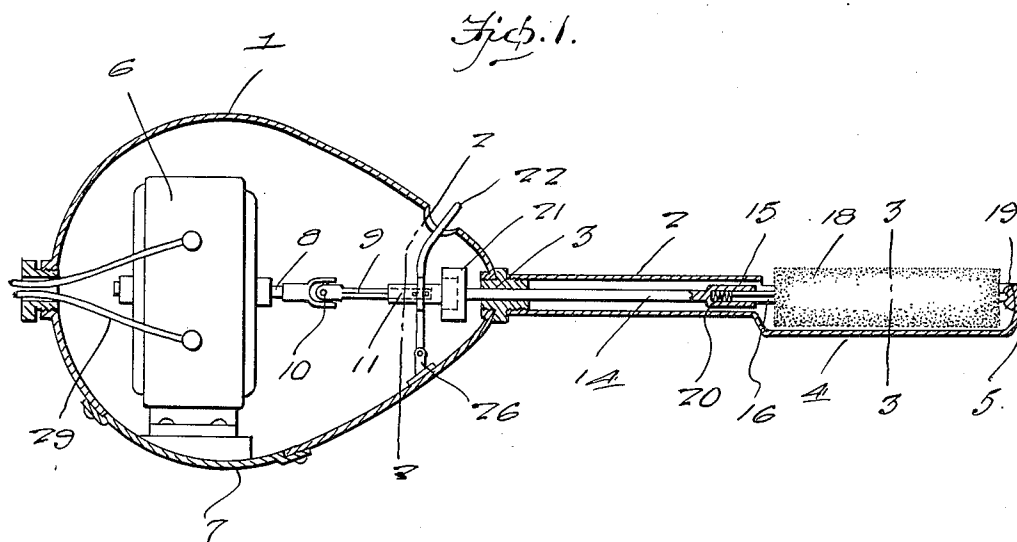
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MOTOR DRIVEN ROTARY TOOTHBRUSH

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MOTOR-DRIVEN ROTARY TOOTHBRUSH.

Application filed September 7, 1927. Serial No. 217,953.

This invention relates to improvements in tooth brushes and more particularly to the type known in the art as rotary tooth brushes.

One of the important objects of the present invention is to provide a rotary tooth brush which is adapted for operation through the medium of a suitable motor, means being provided for effecting the rotation of the driven shaft with which the brush head is associated in either direction for facilitating the cleaning of the teeth in a simple and efficient manner.

A further object of the invention is to provide a motor driven rotary tooth brush of the above mentioned character, which is of such construction as to enable a person to easily handle the device while in use and further actuate the lever which controls the reversing of the rotation of the driven shaft and the brush head mounted thereon.

A still further object is to provide a motor driven rotary tooth brush of the above mentioned character, which is simple in construction, inexpensive, strong and durable and further well adapted for the purposes for which it is designated.

Other objects and advantages of this invention will become apparent during the course of the following description.

In the accompanying drawing, forming a part of this application, and in which like numerals designate like parts throughout the same:

Figure 1 is a view partly in elevation and partly in section of the device embodying my invention.

Figure 2 is a sectional view taken approximately on line 2—2 of Figure 1, and

Figure 3 is a sectional view taken on line 3—3 of Figure 1.

In the drawing, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates the casing, the same being substantially egg shaped. An elongated sleeve 2 is detachably associated with the forward end of the egg shaped casing 1 as illustrated at 3. The outer or forward end of the sleeve 2 terminates in a substantially semi-circular shield or guard 4 the purpose of which will hereinafter be more fully described. The forward

end of the shield or guard is closed as illustrated at 5. A portable electric motor designated generally by the numeral 6 of any well known construction is adapted to be supported within the rear portion of the egg shaped casing 1, the same being removably associated with the casing through the medium of a suitable opening provided in the bottom of the casing and the closure 7 therefor. The drive shaft of the motor is illustrated at 8. A stub shaft 9 is connected at its rear end to the forward end of the drive shaft 8 by a universal coupling 10, also of any well known construction. The stub shaft 9 is substantially rectangular in cross section and adapted for slidable movement on the forward end thereof is the sleeve 11, the same being provided at its forward end with the enlarged circular head 12. A leather band or the like such as is illustrated at 13 is disposed around the peripheral edge of the head and the purpose thereof will hereinafter be more fully described.

Extending through the elongated sleeve 2 and through the bushing 3 so as to have its inner end disposed within the forward end of the egg-shaped casing 1 and adapted for rotation within the sleeve is the driven shaft 14. The forward end of the driven shaft is provided with a socket 15 for receiving the inner end of the shaft 16 on which the brush head 17 is mounted, the bristles of the brush being illustrated at 18. The socket member 15 has its bore substantially rectangular in cross section and the inner end of the shaft 16 is also of such shape as to insure the rotation of the brush with the driven shaft. The forward or outer end of the shaft 16 is removably supported in a suitable bearing 19, the same being secured on the forward closed end of the shield or guard 4. A coil spring 20 is disposed within the socket 15 and engages the inner end of the shaft 16 for securing the brush in position in a detachable manner and it is obvious that when the coil spring 20 is compressed, the brush may be readily removed from the semi-circular shield or guard 4 for the purpose of cleaning the same or replacing a worn brush with a new one.

A cup shaped member 21 is mounted on the inner end of the driven shaft 14 and is dis-

posed within the forward end of the egg shaped casing 1 for cooperation with the head 12 formed on the forward end of the sleeve 11 whereby a clutch is formed. A lever 22 has its intermediate portion provided with a yoke 23 for cooperation with the laterally extending pins 24 associated with the sleeve 11. The lower end of the lever is adapted for swinging movement on the pin 25 which is supported transversely between the upper ends of the arms of substantially U-shaped bracket 26, the latter being secured in the bottom of the forward portion of the casing. Suitable coil springs 27 are disposed on the pin 25 on opposite sides of the lower portion of the lever 22 as clearly illustrated in Figure 2. The upper portion of the lever extends upwardly through a suitable slot 28 provided therefor in the top of the forward portion of the casing whereby the person using the brush may readily actuate the lever.

The current for operating the electric motor 6 is supplied through the medium of the wires 29 which extend through the rear end of the casing. With the parts arranged as shown in Figure 1 of the drawing, the circular head 12 on the forward end of the sleeve 11 will be in engagement with the inner peripheral face of the cup shaped member 21 and when in this position the lever 22 will be disposed in one end of the slot 28. The motor 6 will then cause the driven shaft 14 to be rotated in one direction, the brush head 17 being adapted for simultaneous rotation with the driven shaft. In order to reverse the rotation of the driven shaft and the brush head mounted on the forward end thereof, the sleeve 11 is moved rearwardly on the forward end of the stub shaft 9 by swinging the lever 22 rearwardly whereby the head 12 is moved out of engagement with the inner peripheral face of the cup shaped member 21. The lever 22 is then moved laterally whereby the stub shaft 9 is also caused to move laterally so as to bring the leather covered peripheral face of the head 12 into engagement with the outer peripheral face of the cup shaped member 21 in the manner clearly illustrated in Figure 2 of the drawing in dotted lines whereby the driven shaft will be rotated in the reverse direction when the motor is in operation. The upper portion of the lever 22 is adapted to be disposed in a suitable notch 30 provided in one of the longitudinal edges of the slot when the parts are arranged as shown in dotted lines to prevent the accidental disengagement of the member 12 from the outer peripheral face of the cup shaped member 21.

It will thus be seen from the foregoing description that a rotary tooth brush has been provided which is adapted to be operated through the medium of a suitable electric motor, means being provided for effecting the rotation of the brush head in opposite direc-

tions so as to enable the teeth to be readily and easily cleaned. Furthermore the entire device is of such construction as to enable the user of the device to readily handle the same and operate the lever 22 for the purposes here- tofore more fully set forth.

The simplicity in which my device is constructed enables the several parts to be readily assembled or disassembled and will at all times be positive and efficient in its operation.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what I claim is:—

1. A tooth brush comprising a casing, an elongated sleeve extending forwardly from the forward end thereof, a motor supported in the casing, a stub shaft, a universal coupling connecting the stub shaft and the motor shaft, a driven shaft extending through the sleeve from within the forward portion of the casing, a brush head connected to the driven shaft, a sleeve slidably connected on the stub shaft, an enlarged circular head on the forward end of the sleeve, a circular recessed member supported on the inner end of the driven shaft, said circular head being adapted to be engaged in the recessed member for effecting the rotation thereof, a lever supported at its lower end in the casing, the upper portion of the lever extending through a transverse slot provided in the top of the casing, the intermediate portion of the lever being secured to said sleeve, said lever being adapted to be moved rearwardly and laterally by virtue of the slidable connection and universal coupling to disengage the head from the recessed member and to move the head into engagement with the outer peripheral face of the recessed member, whereby the driven shaft may be rotated in opposite directions.

2. A tooth brush comprising a casing, an elongated sleeve extending forwardly from the forward end thereof, a motor supported in the casing, a stub shaft, a universal coupling connecting the stub shaft and the motor shaft, a driven shaft extending through the sleeve from within the forward portion of the casing, a brush head connected to the driven shaft, a sleeve slidably connected on the stub shaft, an enlarged circular head on the forward end of the sleeve, a circular recessed member supported on the inner end of the driven shaft, said circular head being adapted to be engaged in the recess member for effecting the rotation thereof, a U-shaped bracket secured in the bottom of the casing, a cross pin supported between the arms of the bracket, a lever slidable at its lower end on the cross pin, the upper portion of the lever

extending through a transverse slot provided in the top of the casing, the intermediate portion of the lever being secured to said sleeve, said lever being adapted to be moved rearwardly and laterally by virtue of the slidable connection and universal connection to disengage the head from the recessed member, and to move the head into engagement with the outer peripheral face of the recess member, whereby the driven shaft may be rotated in opposite directions. 10

In testimony whereof I affix my signature.

GORDON C. FARMER.