

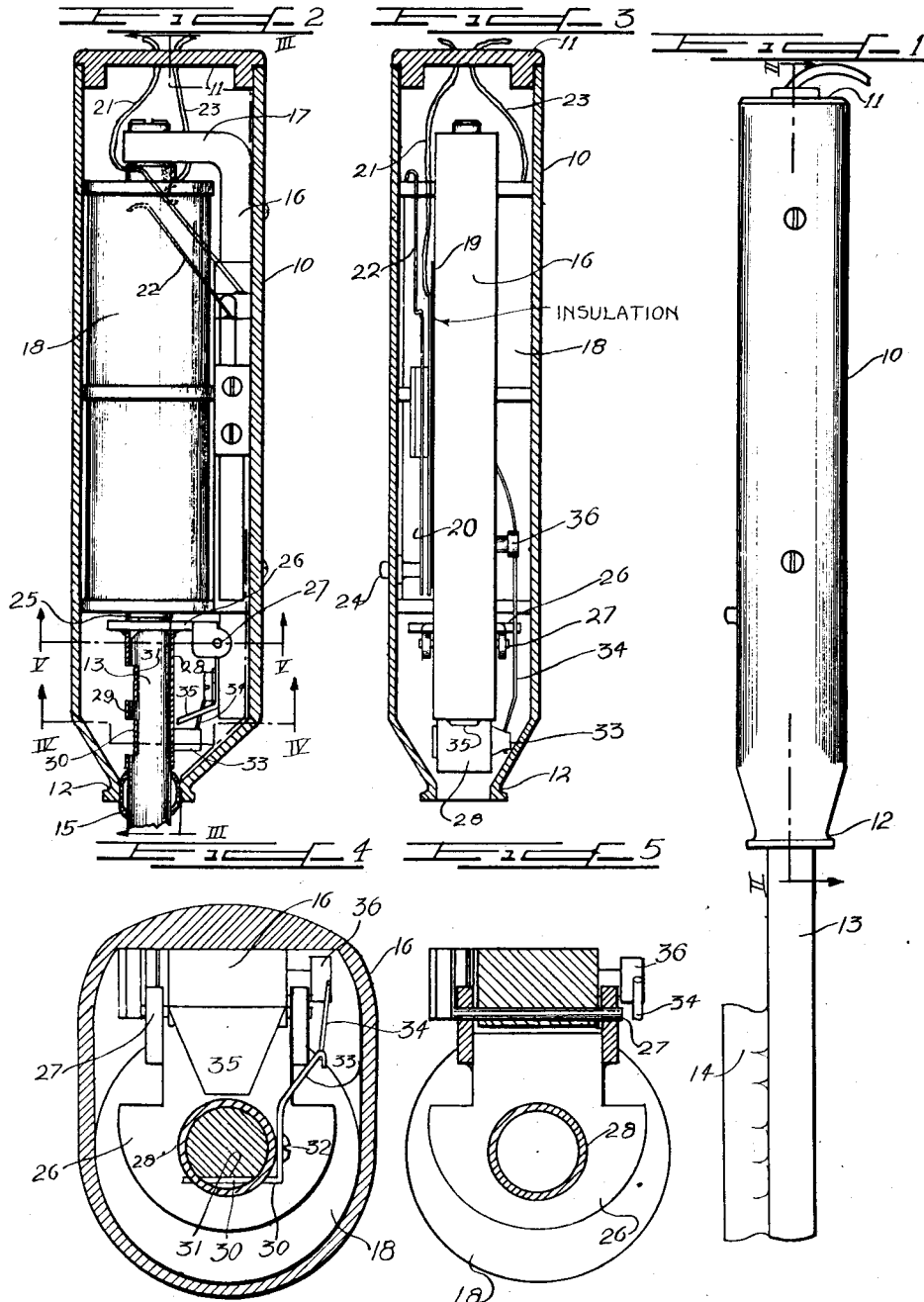
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VIBRATORY TOOTHBRUSH

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UNITED STATES PATENT OFFICE

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VIBRATORY TOOTHBRUSH

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This invention relates to an electrically operated mechanism for vibrating interchangeable individual tooth brushes.

It is an object of this invention to provide an improved vibratory tooth brush mechanism that will be compact, convenient to operate, trouble-proof and substantially watertight.

It is another object of this invention to provide an improved interchangeable tooth brush holder adapted to receive and automatically retain individual tooth brushes in a fixed position.

It is also an object of this invention to provide an improved tooth brush actuating mechanism adapted to convert the limited vibratory movement of the armature of a magnet into a powerful vibratory movement of sufficient range of movement at the brush to properly cleanse the teeth.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a side elevation of a device embodying the features of this invention together with a tooth brush inserted therein;

Figure 2 is a section on the line II—II of Figure 1 with parts shown in elevation;

Figure 3 is a section on the line III—III of Figure 2 with parts shown in elevation;

Figure 4 is an enlarged section on the line IV—IV of Figure 2, and

Figure 5 is an enlarged section on the line V—V of Figure 2.

As shown on the drawings:

A tubular casing or body 10 is closed at the top by a cap 11 and the bottom is drawn out to a narrow neck 12 through which the shank 13 of a tooth brush 14 is inserted. To render the casing 10 water tight when in use a soft rubber ferrule 15 is positioned on the tooth brush shank, the ferrule being flexible to permit the vibration of the brush while maintaining the necessary seal at the neck 12.

The operating mechanism as a whole is as-

sembled separately from the casing and inserted therein as a unit. This assembly is tied together by the bent ended bar 16, the bent end 17 of which is secured to the top of a magnet 18, which lies parallel to the length of the bar. Mounted on one side of the bar is a control switch comprising an underlying layer of insulation 19 and two spaced spring strips 20, one of which is connected to one lead-in wire 21 and the other connected by the wire 22 to the magnet, the other lead-in wire 23 going directly to the magnet. The switch is closed by finger pressure on the button 24 projecting through the wall of the casing 10.

The magnet core 25 projects slightly at the lower end and acts on an armature 26 pivoted at 27 to the bar 16. A tube 28 is secured to the under side of the armature to receive the tooth brush shank. This tube is cut away at 29 to receive a spring 30 which serves to retain the tooth brush in position by snapping into suitable flats 31 on the round shank thereof. To remove or replace the tooth brush a quarter turn or more forces the spring out to the surface of the tube and permits withdrawal of the shank. The top of the shank is rounded to push the springs out when inserting the same. The spring 30 is secured to the wall of the tube by a screw 32, an extension of the spring being formed as a hook 33 to engage the return spring 34 which draws the tube and attached armature away from the magnet between impulses. This spring 34 is held in the head of a screw 36, the upper end of the spring being anchored between the bar 16 and the coil 18. A back stop 35 is provided to limit the range of movement of the tube and armature.

In use the instrument depends upon alternating current or a pulsating current supply such as is produced by the common forms of vibratory contact plugs used for sign flashing and the like when alternating current is not available.

We are aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and we therefore do not

purpose limiting the patent granted hereon otherwise than necessitated by the prior act.

We claim as our invention:

1. A device of the class described comprising an elongated casing, means adapted to reciprocate a tooth brush in a plane substantially parallel to the major axis of the casing, said means including an electromagnet within the casing adapted to be connected to a source of alternating or pulsating current, a pivoted armature adapted to be vibrated by the electromagnet, brush attaching means on the said pivoted armature and within the casing, and spring means adapted to normally retain the handle of a tooth brush within the said brush attaching means.

2. In a device of the class described, an elongated electromagnet including a core therefor, means adapted to reciprocate a tooth brush in a plane substantially parallel to the major axis of the said electromagnet, said means including a bent member associated with the said electromagnet, an armature pivoted on the said bent member and adapted to be vibrated by the said electromagnet, brush-attaching means on the said armature and in alinement with the said core, and spring means engaging the armature and adapted to normally retain the handle of a tooth brush within the said brush-attaching means, said bent member retaining the said electromagnet, the said armature and the said spring means in assembled relation in a unitary structure.

In testimony whereof, we have hereunto subscribed our names.

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