Jan. 9, 1962 W. GILET 3,015,833

MOTOR DRIVEN TOOTH BRUSH

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FIG. 1

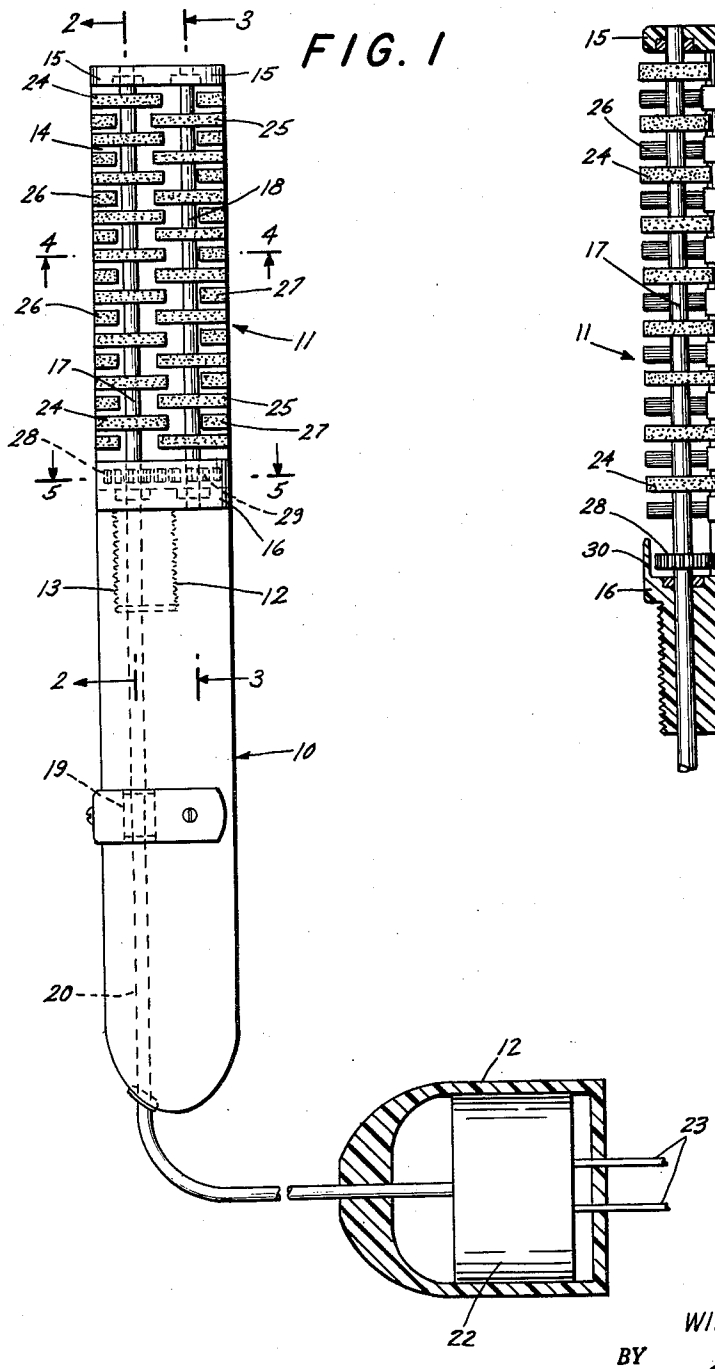


FIG. 2

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FIG. 3

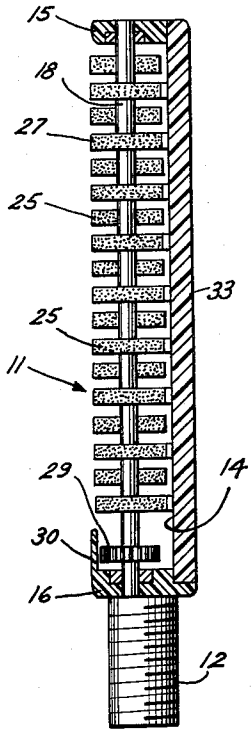


FIG. 4

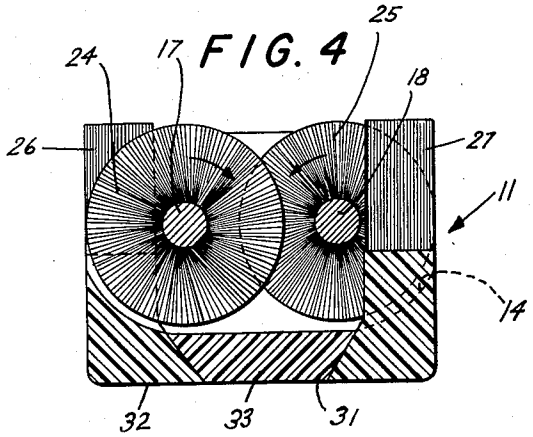


FIG. 5

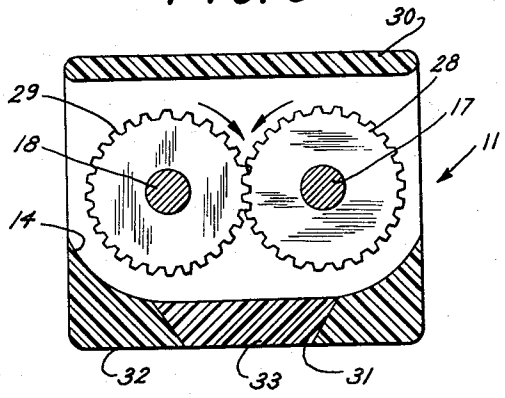
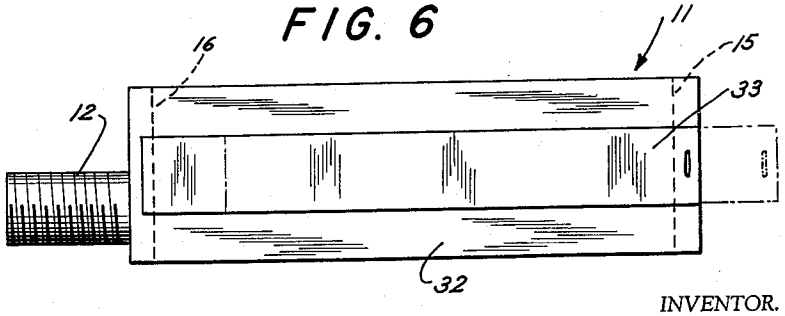


FIG. 6



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MOTOR DRIVEN TOOTH BRUSH

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2 Claims. (Cl. 15—23)

This invention relates to a motor driven tooth brush adapted primarily for personal use.

It has been found that motor driven tooth brushes have the tendency of moving away from the teeth due to the impact of the rotary brushes thereagainst. Thus, such tooth brushes have a tendency to wobble in the mouth rendering it necessary to exert considerable pressure of the rotary brushes against the teeth in order to maintain the same in contact therewith. The present invention overcomes this objection by providing a tooth brush having both rotary and fixed bristles whereby the tooth brush may be readily controlled in the brushing operation.

Another object of the invention is to provide a tooth brush with rotary brushes having clumps of bristles arranged between fixed clumps of bristles whereby the teeth are alternately subject to the action of the rotary and fixed clumps so as to effect a thorough brushing and cleansing of the teeth.

Still another object of the invention is to provide means by which the rotary bristles may be conveniently cleansed without removing the same from the brush head.

With the foregoing and other objects in view, reference is now made to the following specification and accompanying drawings in which the preferred embodiment of the invention is illustrated.

In the drawings:

FIG. 1 is a top plan view of a tooth brush constructed in accordance with the invention and showing the same connected with an electric motor and plug.

FIG. 2 is a sectional view taken approximately on line 2—2 of FIG. 1.

FIG. 3 is a similar view taken approximately on line 3—3 of FIG. 1.

FIG. 4 is an enlarged transverse sectional view taken approximately on line 4—4 of FIG. 1.

FIG. 5 is a similar view taken approximately on line 5—5 of FIG. 1.

FIG. 6 is an under side view of the tooth brush head removed from the handle thereof.

Referring to the drawings, the tooth brush includes an elongated handle **10** and a head **11** formed with a threaded shank **12** which threadedly engages in a threaded opening **13** in the handle member for removably connecting the head thereto. The head is provided with an upper face **14** of general concave formation extending between the end walls **15** and **16** and journalled for rotation therebetween are parallel shafts **17** and **18**. The shaft **17** extends through the shank **12** and is coupled within the handle as at **19** with a flexible drive shaft **20**. The shaft **20** protrudes through the end of the handle and is connected with an electric plug **21** having an electric motor **22** arranged therein and connected with terminals **23** for engagement in an electric socket. The shafts **17** and **18** are provided with longitudinally spaced cylindrical brush sections **24** and **25** respectively, the bristles of which are affixed to the shafts and project radially outward from the peripheries thereof. The rotary brush sections **24** are arranged in staggered relation with reference to the rotary brush sections **25** and with the inner peripheral edge portions of said brush sections overlapping between the shafts as indicated in FIGS. 1 and 4 of the drawings.

Affixed to the upper face **14** of the brush head **11** at one side thereof is a row of longitudinally spaced clumps or tufts of bristles **26** extending upwardly from the upper face **14** thereof and affixed to said upper face **14** at the opposite side thereof is a row of longitudinally spaced clumps or tufts of bristles **27** which extend upwardly from the inner face **14** thereof. The clumps of bristles **26** are staggered with relation to the clumps of bristles **27** and the shafts **17** and **18** extend between the said rows with the brush sections **24** projecting between the adjacent clumps **26** respectively and the brush sections **25** projecting between the adjacent clumps **27** respectvely. The brush sections **24** are rotated in a clockwise direction as viewed toward the outer end, while the brush sections **25** are rotated in a counterclockwise direction and for this purpose the shaft **18** has a gear **29** affixed thereto which is disposed in meshing engagement with a gear **28** affixed to the shaft **17** which is rotated by the turning of the flexible drive shaft **20**. In order to prevent contact of the gears with the teeth in the brushing operation, the end wall **16** is provided with a forwardly projecting portion **30** extending over the gears which are arranged close to the wall **16**.

In order to provide means for cleaning the brush sections **24** and **25**, the brush head **11** is provided with a dovetail slot **31** which opens through the outer end thereof and through the outer face **32** and the upper face **14** and extends inwardly into overlying relation with the end wall **16**. A slide **33** slidably fits the slot and is normally retained therein by engagement of the side edges thereof with the sides of the slot and with the ends of the slide resting upon the end walls **15** and **16**. The portion of the shaft **17** within the handle **10** together with the end of the drive shaft **20** and the coupling **19** loosely fit the longitudinal opening in the handle whereby the head **11** may be turned with reference to the handle **10** so as to disconnect the said parts.

It will be understood that the handle **10** may be used for different lengths and widths of brush heads **11** whereby the same handle may be used for brush heads for children as well as adults. The handle **10** and the casing of the electric plug **21** are preferably of insulating material such as hard rubber or thermoplastic.

While the preferred form of the invention has been shown and described herein, it is to be understood that the same is not so limited but shall cover and include any and all modifications of the invention which fall within the purview thereof.

What is claimed is:

1. In a tooth brush, an elongated brush head including a bottom wall and end walls, a pair of parallel shafts extending longitudinally of said brush head and rotatably mounted at their ends in said end walls, interengaging gearing means mounted on said shafts at one end of said brush head for the rotation of said shafts in unison, each of said parallel shafts having a series of cylindrical brush sections spaced apart longitudinally thereof for rotation therewith, a series of clumps of bristles affixed to said bottom wall in spaced relation longitudinally of said brush head and arranged in a row along each longitudinal side edge portion of said bottom wall, each of the clumps of bristles in one of said rows being arranged between adjacent cylindrical brush sections of one of said shafts, and each of the clumps of bristles in the other row being arranged between adjacent cylindrical brush sections of said other shaft.

2. In a tooth brush as set forth in claim 1 in which the clumps of bristles extend outwardly from the bottom wall substantially even with the tops of the cylindrical brush sections and each of the cylindrical brush sections of one shaft is arranged at its inner portion between the inner portion of adjacent cylindrical brush sections of the other shaft.

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