

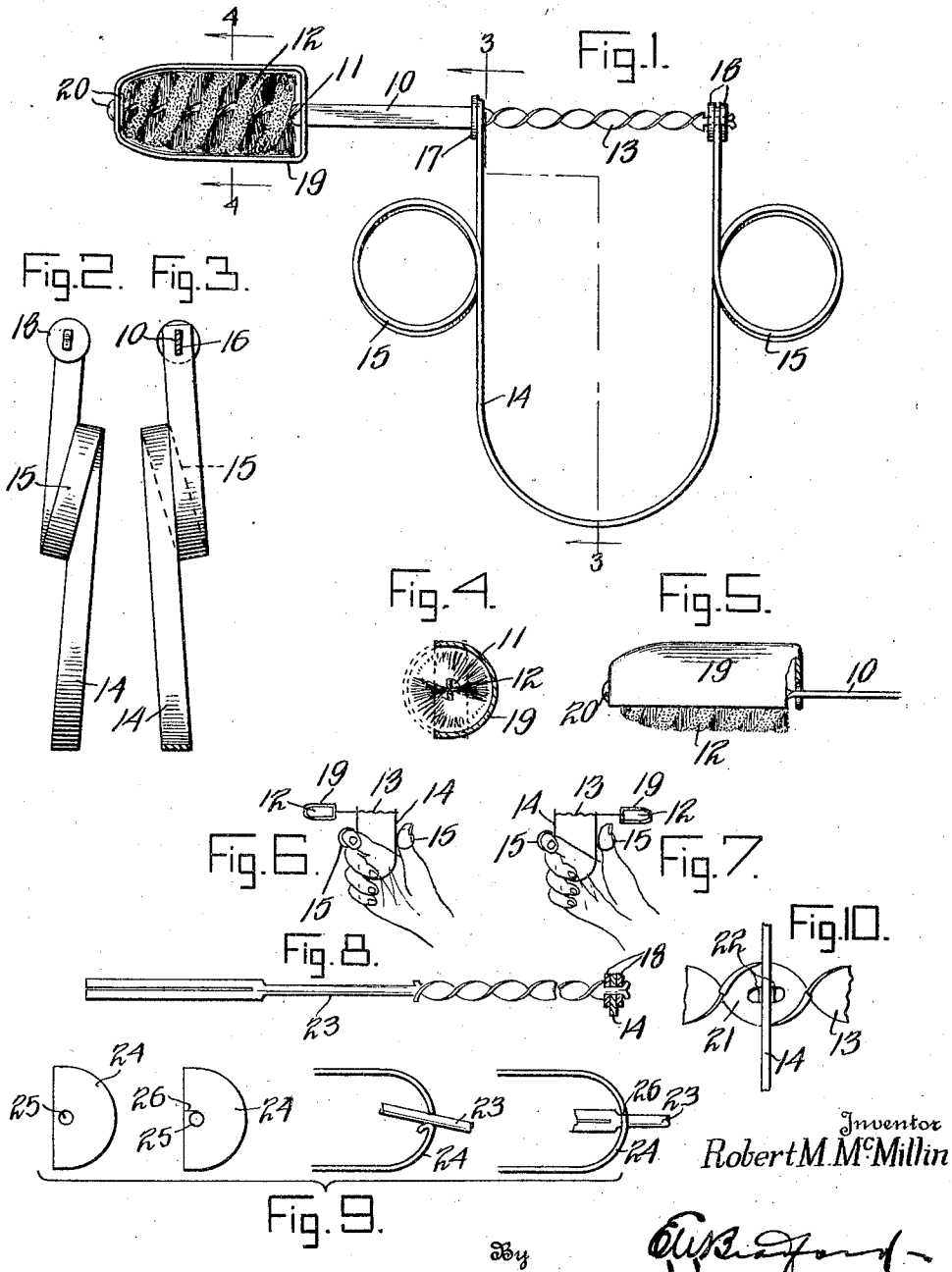
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TOOTHBRUSH

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UNITED STATES PATENT OFFICE.

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TOOTHERUSH.

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My said invention relates to a tooth brush and it is an object of the invention to provide a brush which may be rotated to clean the teeth and provided at the same time with a guard for preventing injury to the lips of the user.

Another object of this invention is to provide a device of this character which may be operated by either the right or left hand according to the preference of the person using the same.

A further object of the invention is to provide a flexible shaft so that the movement of the hand in operating the device will not affect the position of the brush but will permit the brush to yield and conform to the configuration of the teeth.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a perspective of my device,

Figure 2, an end elevation of the handle,

Figure 3, a section on line 3—3 of Figure 1,

Figure 4, a section on line 4—4 of Figure 1,

Figure 5, a side elevation of the brush and the guard therefor,

Figures 6 and 7 are views showing the method of using the brush with the right hand to brush the teeth at different sides of the mouth,

Figure 8, a side elevation of a modified form of shaft,

Figure 9, a detail view of the manner of application of the guard for the bristles where the reduced shaft of Fig. 8 is employed, and

Figure 10, a detail side elevation of a bearing element in the slot in the handle and between the handle and the spiral shaft.

My invention comprises a shaft 10 of strap metal having its end 11 split and bristles 12 between said split portions and twisted preferably into spiral shape. The end of the shaft 10 opposite the end carrying the bristles is twisted at 13 and has mounted thereon a spring handle 14 having finger loops 15 by means of which the handle may be compressed.

One end of the handle 14 is provided with a rectangular slot 16 to accommodate the correspondingly shaped shaft 10. A stop 17 is fixed on the shaft 10 for limiting the outward movement of the end of the handle

while the opposite end of the handle is pivotally but loosely mounted on the shaft between stops 18. The end of the handle provided with the slot 16 is free to move longitudinally of the shaft and when the handle is compressed the slotted end of the handle will be moved toward the fixed end of the handle and cause the shaft to revolve with the bristles, whereupon the spring action of the handle will return said slotted end to its normal position giving a counter motion to the shaft and the bristles carried thereby. The reciprocating motion of the fingers is thereby changed into rotary motion.

To protect the lips of the user from the rotating bristles I stamp a shield or guard 19 from thin sheet metal and rotatably mount the same on the shaft 10 about the bristles 12, said shield being curved to substantially semi-cylindrical shape and having its outer end slightly pointed so that the device may be inserted far enough to operate upon the rear or jaw teeth. Said shield or guard 19 is held against endwise movement between stops 20 on the shaft 10 and the ends of the guard are provided merely with openings in which the shaft is journaled. This construction permits entirely independent movement of the working mechanism and allows the spirally twisted strap to flex during the rotation of the bristles within the guard. The pressure of the brush upon the teeth will be entirely dependent upon the pressure of the lips and cheeks upon the guard.

In the construction of my invention the handle and the shaft are formed of plain strap metal rendering the device very economical to produce and requiring very little machine work, in fact only the punching of the holes in the handle and in the guard for the bristles.

The loops 15 of the handle are preferably formed on opposite sides of the handle proper, thus better conforming to the curve of the fingers and facilitating the use of the device on either hand.

A bearing element 21 may be provided in order to furnish a greater bearing surface for the handle. The bearing element 21 is formed of a rectangular sleeve twisted to correspond to the spiral portion 13 of the shaft 10. This bearing element is non-rotatably but loosely mounted in the slot 16 of the handle and portions 22 are struck up for maintaining the sleeve within said slot. By this construction the necessary slight lateral

shifting of the sleeve is provided for when the arm is moved along the spiral.

In Fig. 8 I have shown a shaft 23 having its side portions cut away intermediate its ends to increase its flexibility. In this figure is also shown the manner in which one end of the handle 14 is held between the washers 18. With the modified construction of shaft shown it is unnecessary and not desirable to provide an opening in the end of the guard as large as the width of the shaft in which event I provide a guard 24 with an opening 25 for receiving the reduced portion of the shaft 23, and to get the shaft 23 in said opening 25 I slit the guard at 26 and bend the metal back so that the shaft may be inserted in the opening and then return the metal to its original position.

It will be obvious to those skilled in the art that changes may be made in my device without departing from the spirit of the invention. I therefore do not limit myself to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

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

1. A tooth brush comprising a shaft having a circular brush mounted adjacent one end, said shaft being spirally formed adjacent its opposite end, a flexible U-shaped handle for said shaft and having each end connected with said shaft said handle having one end fixed against longitudinal movement on the shaft and having its other end provided with a slot adapted to be moved longitudinally of the spiral for rotating the same, substantially as set forth.

2. A tooth brush comprising a shaft having a spiral formation at one end and bristles mounted on its other end, a guard for said bristles rotatably mounted on said shaft, a handle for said shaft having one end held against endwise movement on the shaft and having its other end connected with said spirally formed portion adapted to be moved longitudinally of the spiral to rotate the same, substantially as set forth.

3. A shaft, a spiral arrangement at one end thereof, a flexible U-shaped handle for said shaft having each end perforated for reception of the shaft and having one of said perforated ends fixed against longitudinal movement on the shaft, the perforation in the opposite end of the handle being of a shape to cause rotation of the shaft when moved longitudinally of the spiral, substantially as set forth.

4. A shaft having a spiral formation thereon, a flexible U-shaped handle for said shaft each leg of said U being provided with a finger receiving loop one end of said handle being held against longitudinal movement with reference to said shaft but rotatable

freely thereon and the other end of said handle having a slot and adapted thereby to be moved longitudinally of the spiral to rotate the same, substantially as set forth.

5. A shaft having a spiral formation thereon, a flexible U-shaped handle for said shaft each leg of said U being provided with a finger receiving loop one end of said handle being held against longitudinal movement with reference to said shaft but rotatable freely thereon and the other end of said handle having a slot and adapted to be moved longitudinally of said spiral to rotate the same, said finger loops being disposed on opposite sides of said handle, substantially as set forth.

6. A tooth brush comprising a shaft having a spiral formation at one end and a brush on its other end, a handle for said shaft comprising a plain wire of substantially U-shape, said handle having one end held against endwise movement on the shaft and having its other end connected with said spiral formation for rotating the same when moved longitudinally thereof, substantially as set forth.

7. A tooth brush comprising a shaft having one end twisted and having a brush on its opposite end, a flexible U-shaped handle having its ends mounted on said twisted portion, one of the ends of the handle being fixed against rotation about the shaft but movable along the twisted portion for rotating the shaft, said shaft being cut away at its sides between the brush and path of the handle to provide increased flexibility, substantially as set forth.

8. A tooth brush comprising a shaft having one end twisted and having a brush on its opposite end, a flexible U-shaped handle having its ends mounted on said twisted portion, one of the ends of the handle being fixed against rotation about the shaft but movable along the twisted portion for rotating the shaft, said shaft being cut away at its sides between the brush and path of the handle to provide increased flexibility a guard having an opening in one end for receiving the end of the shaft and having an opening through the opposite end for snugly housing the shaft, said guard being split from said opening outwardly to the edge of the shield whereby the metal may be bent aside to permit the shaft to be inserted in the opening and then returned to its original position, substantially as set forth.

9. A tooth brush comprising a shaft having a brush on one end and a spiral formation at its opposite end with one end disposed adjacent the end of the shaft and the other end disposed intermediate said ends, said shaft having its outer end reduced to provide a reduced bearing surface and formed with a shoulder, a washer on said

reduced portion against said shoulder, a second washer on said reduced portion spaced from said shoulder the outer end of said reduced portion being enlarged to hold the second-mentioned washer in position, a flexible handle in the form of a loop having one end perforated and mounted between said washers, the other end of said handle mounted on said shaft having a rectangular perforation and adapted to be moved longitudinally of the spiral for rotating the same, substantially as set forth.

10. A tooth brush comprising a shaft having a brush on one end and a spiral formation at its opposite end with one end disposed adjacent the end of the shaft and the other end disposed intermediate said ends, said shaft having its outer end reduced to provide a reduced bearing surface and formed with a shoulder, a washer on said reduced portion against said shoulder, a second washer on said reduced portion

spaced from said shoulder, the outer end of said reduced portion being enlarged to hold the second-mentioned washer in position, a flexible handle in the form of a loop having one end perforated and mounted between said washers, the other end of said handle mounted on said shaft having a rectangular perforation and adapted to be moved longitudinally of the spiral for rotating the same, and a bearing element mounted on the twisted end of the shaft in the slot in the handle said bearing element comprising a sleeve twisted correspondingly to the twist of the shaft and having struck up tongues engaging the handle adjacent the slot for holding the sleeve within the slot in the handle, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Lagrange, Georgia, this 15th day of October, A. D. nineteen hundred and twenty-five.

ROBERT MILTON McMILLIN. [L. S.]