Feb. 3, 1948. J. P. HAWLEY 2,435,394

ADJUSTABLE TOOTHBRUSH

Filed Dec. 26, 1946

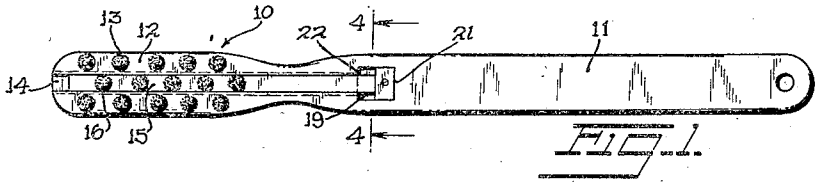


FIG. 1.

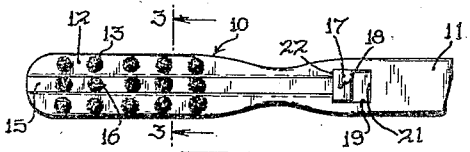


FIG. 2.

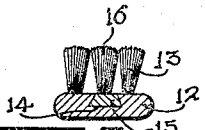


FIG. 3.

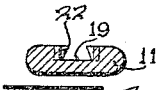


FIG. 4.

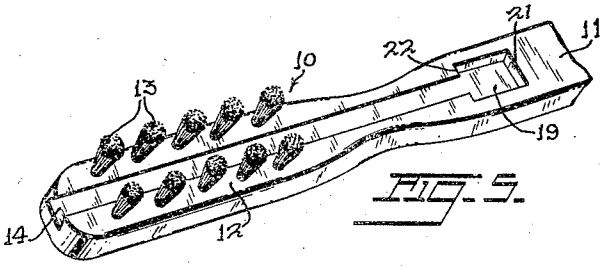


FIG. 5.

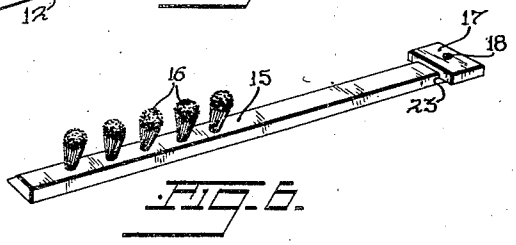


FIG. 6.

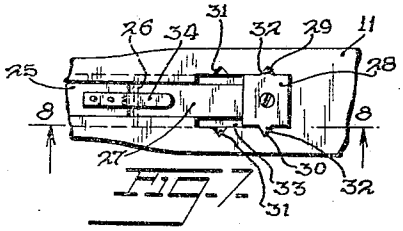


FIG. 7.

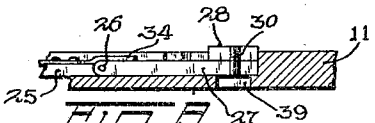


FIG. 8.

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ADJUSTABLE TOOTHBRUSH

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5 Claims. (Cl. 15—201)

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This invention relates to brushes and more particularly to the mounting of the bristles therein.

It is an object of the present invention to provide a row of bristles within a toothbrush which will be adjustable between two positions, one position being such that the row of bristles will be in alignment respectively with the row of bristles located on a fixed member and the other position being such that the row of bristles will be aligned so as to be respectively staggered with regard to the respective bristles of the fixed row, whereby to adapt the brush for different brushing operations within the mouth such as up and down brushing or sidewise brushing.

It is another object of the present invention to provide an adjustable slide within a brush bearing bristles which will be easily fitted and made secure within a recess within the brush structure and which will extend to an intermediate portion along the length of the brush and adjacent the handle thereon so as to have a brush projection which is readily accessible for effecting the adjustment of the row of bristles.

According to the invention, there is provided a brush structure with a dove-tailed groove fitted therein on the face thereof containing the bristles. Within this dove-tailed groove, there is adjustably slidable a member containing a row of such bristles similarly spaced to the rows of bristles carried within the fixed portion of the brush structure and adapted to be adjusted between two positions, one position being such that the respective bristles of the row will be in transverse alignment with the bristles on the fixed part and another position being such that the bristles of the row will be staggered with respect to the bristles of the fixed part.

Projecting from an opening in the intermediate portion adjacent the handle thereof, is a button which is readily accessible and can be pushed or pulled to effect adjustment of the slide bearing the row of bristles. The slide cannot be removed unless the button portion is removed from the slide and the slide made free of the opening having the stop ends therein. The slide can only be moved a short distance and is not removable therefrom except on very infrequent occasions when it is desired that the slide be replaced by another slide having fresh bristles.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a plan view looking at the underside of a toothbrush, showing the slide adjusted so

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that its bristles are in staggered relation to the bristles on the fixed portion of the brush structure.

Fig. 2 is a fragmentary view similar to Fig. 1 but where the slide has been adjusted forwardly so as to place the bristles thereupon in transverse alignment with the bristles on the fixed part.

Fig. 3 is a transverse cross sectional view taken on line 3—3 of Fig. 2, looking in the direction of the arrows thereof.

Fig. 4 is a transverse cross sectional view taken on line 4—4 of Fig. 1, through the opening wherein the button portion may lie.

Fig. 5 is an enlarged perspective view of the forward end of the brush with the slide removed therefrom, looking into the dove-tailed groove and back opening provided therewithin.

Fig. 6 is a perspective view of the slide with the button portion thereon, removed from the main body of the brush.

Fig. 7 is a fragmentary plan view of a modified form of the invention wherein the slide will be positively fixed in its adjusted positions.

Fig. 8 is a cross sectional view taken on line 8—8 of Fig. 7, looking in the direction of the arrows thereof.

Referring now to the figures, 10 represents a brush having a handle portion 11 and a forward portion or brush head 12 having fixed bristles 13 located therewithin on two rows, one at each side of the portion 12. Extending through the middle of the portion or head 12 is a dove-tailed groove 14 adapted to contain a complementary slide 15 also having bristles 16 thereon. This slide 15 can be moved between two positions, one where the bristles 16 are in transverse alignment with the bristles 13 and in the other position where the bristles 16 are staggered with relation to the bristles 13, as shown in Fig. 1. On the inner end of the slide 15 is a button 17 attached thereto by means of a screw 18 extending downwardly through the button and into the slide. This button 17 is adapted to be moved within an enlarged opening 19 in the handle portion 11. The length of this opening is only sufficiently long to allow the bristles 16 to be aligned as aforementioned. The rear edge of the button 17 will engage the back 21 of the opening and thereby retain the slide so that the bristles are staggered with the bristles 13.

The forward edge of the button 17 will engage with shoulders 22 on the ends of the forward portion of the opening 19. The button 17 is fitted into a cut-out portion 23 on the inner end of the slide and projects upwardly from the top of the opening 19 only sufficiently to provide a good engagement with the thumb or finger portion which may be rested upon the brush handle 11. The

back 21 of the shoulder 22 thus provides definite stops for limiting the movement of the slide.

Referring now particularly to Figs. 7 and 8, there is shown a modified form of the invention wherein provision is made to positively lock the slide in both of its positions. A slide 25 of less length than the slide 15 is provided. This slide has pivoted at its inner end by means of a pin 26, an extension 27 having a button 28 fixed to it with V-shaped side projections 29 and 30 adapted to be seated in side notches 31 or 32 adjacent opposite ends of an opening 33 in which the button 38 can slide. The extension 27 can be raised against the action of a leaf spring 34 on the slide 25 by projecting a fingernail or pointed article through an opening 39 in the bottom of the brush handle 14. When the button 38 is at the rear of the opening, the bristles upon the slide 25 will be placed in staggered relation to the bristles 13 on the main part of the brush. When the slide is moved forwardly so that the button 38 is in the forward end of the opening, the bristles on the slide 25 will be placed in transverse alignment with the bristles 13 of the main part. The spring 34 will at all times keep the extension and the button 28 in the opening 33.

It is to be understood that the buttons 17 and 28 may be formed integral with the slide members 15 and 27, respectively; also that the brush may be of any desired size and shape and used for cleaning teeth or other purposes.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. A brush having a brush head and a handle portion, said brush head and handle portion having a slot extending axially therethrough, said brush head having brush bristles at opposite sides of the slot and respectively in transverse alignment with one another, a slide longitudinally adjustable within the slot and having bristles adapted to be aligned with the bristles on the brush head, means disposed within the handle for limiting the movement of the slide whereby the bristles upon the slide may be brought into either transverse alignment with the bristles on the brush head or staggered with respect thereto, said means for limiting the movement of the slide comprising a button secured to the inner end of the slide, and an opening in the handle adapted to be abutted by the button, at one end or the other when the slide has been moved into one or the other of its positions.

2. A brush having a brush head and a handle portion, said brush head and handle portion having a slot extending axially therethrough, said brush head having brush bristles at opposite sides of the slot and respectively in transverse alignment with one another, a slide longitudinally adjustable within the slot and having bristles adapted to be aligned with the bristles on the brush head, means disposed within the handle for limiting the movement of the slide whereby the bristles upon the slide may be brought into either transverse alignment with the bristles on the brush head or staggered with respect thereto, said means for limiting the movement of the slide comprising a button secured to the inner end of the slide, and an opening in the handle adapted to be abutted by the button at one end or the other when the slide has been moved into one or the other of its positions, said button being removably secured to the inner end of the slide and adapted to lie transversely of the slide and within the opening so that its front edge will engage shoulders at the front of the opening and at opposite sides of the slot or will engage the back of the opening to limit the movement of the slide when moving in that direction.

3. A brush having a brush head and a handle portion, said brush head and handle portion having a slot extending axially therethrough, said brush head having brush bristles at opposite sides of the slot and respectively in transverse alignment with one another, a slide longitudinally adjustable within the slot and having bristles adapted to be aligned with the bristles on the brush head, means disposed within the handle for limiting the movement of the slide whereby the bristles upon the slide may be brought into either transverse alignment with the bristles on the brush head or staggered with respect thereto, said means for limiting the movement of the slide comprising a press button secured to the inner end of the slide, and an opening in the handle adapted to be abutted by the press button, at one end or the other when the slide has been moved into one or the other of its positions, said press button being removably secured to the inner end of the slide and adapted to lie transversely of the slide and within the opening so that its front edge will engage shoulders at the front of the opening and at opposite sides of the slot or will engage the back of the opening to limit the movement of the slide when moving in that direction, said slide being recessed at its inner end and said press button adapted to lie within the recess upon the inner end of the slide and a screw for connecting the press button to the slide.

4. A brush having a brush head and a handle portion, said brush head and handle portion having a slot extending axially therethrough, said brush head having brush bristles at opposite sides of the slot and respectively in transverse alignment with one another, a slide longitudinally adjustable within the slot and having bristles adapted to be aligned with the bristles on the brush head, means disposed within the handle for limiting the movement of the slide whereby the bristles upon the slide may be brought into either transverse alignment with the bristles on the brush head or staggered with respect thereto, said limiting means comprising an extension on the slide, a button on the extension, said handle portion having an opening for receiving the extension and the button, said extension being adjustably connected to the slide so that it may at times be pivoted along with the button upwardly and out of the opening, projection and notch means on the sides of the opening and button to retain the button and slide in any one of its adjusted positions within the opening.

5. A brush having a brush head and a handle portion, said brush head and handle portion having a slot extending axially therethrough, said brush head having brush bristles at opposite sides of the slot and respectively in transverse alignment with one another, a slide longitudinally adjustable within the groove and having bristles adapted to be aligned with the bristles on the brush head, means disposed within the handle for limiting the movement of the slide whereby the bristles upon the slide may be brought into

either transverse alignment with the bristles on the brush head or staggered with respect thereto, said limiting means comprising an extension on the slide, a button on the extension, said handle portion having an opening for receiving the extension and the button, said extension being adjustably connected to the slide so that it may at times be pivoted along with the button upwardly and out of the opening, projection and notch means on the sides of the opening and button to retain the button and slide in any one of its adjusted positions within the opening, and a spring extending between the slide and the extension tending to retain the extension and button in the opening, and said handle portion having a hole beneath the button opening to provide access for a fingernail or article whereby to raise the button and extension out of the opening to effect the adjustment of the slide.

JAMES P. HAWLEY.

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The following references are of record in the file of this patent:

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