

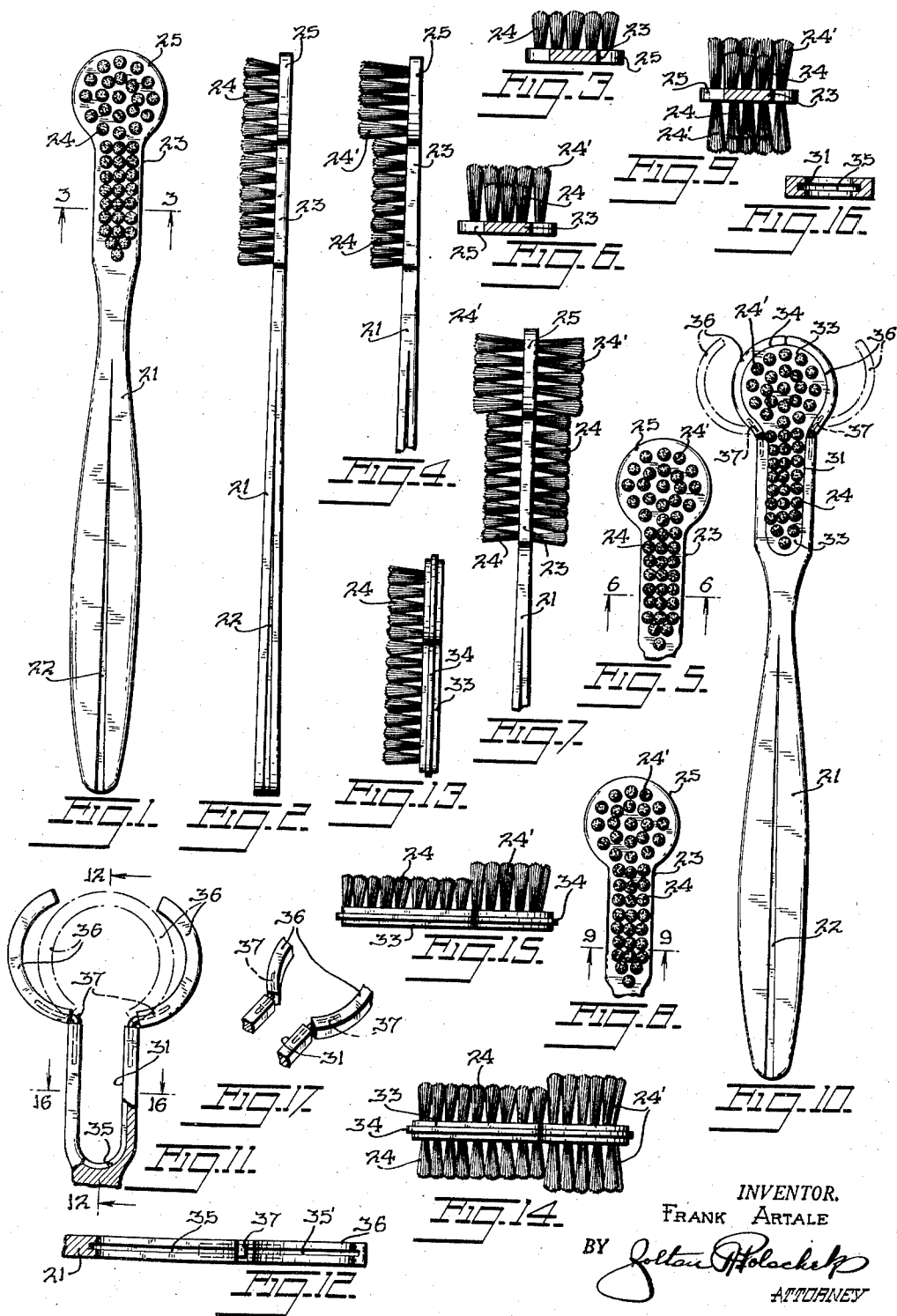
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TOOTHBRUSH HAVING REMOVABLE BRISTLE ELEMENT

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TOOTHBRUSH HAVING REMOVABLE
BRISTLE ELEMENT

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4 Claims. (Cl. 15-167)

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This invention relates to toothbrushes.

It is an object of the present invention to provide an especially formed toothbrush with bristles on the toothbrush head arranged so as to be of circular formation at the outer end and extended throughout a greater diameter than through a portion rearwardly thereof where the bristles are arranged with less width whereby to provide a larger area on the forward end of the brush on which the paste can be disposed.

It is another object of the present invention to provide a toothbrush with a removable brush portion which can be replaced by another brush portion with differently arranged bristles on it and to provide a novel means for fixing these brush heads within the end of the toothbrush handle.

Other objects of the present invention are to provide a toothbrush which is of simple construction, inexpensive to manufacture and efficient in operation.

According to the invention, there is provided a toothbrush head which is formed with a circular formation at the very end which is of wider diameter than the width of the head in the rear of the circular portion. The bristles within the circular portion may be, according to a modified form of the invention, of greater length than the bristles in the rear of the same. The bristles can extend from opposite sides of the brush, if desired, and the bristles can be long on the forward part and short in the rear thereof. Also, the bristles can be placed on a removable bristle retaining portion and these portions can be similarly arranged with bristles of different length.

In the end of the toothbrush there is a slot into which the bristle portion can be extended and retained. Side portions adapted to fit the circular part of the bristle portion are connected by spring elements so that they can be expanded to permit the inward insertion of the bristle portion which will automatically, when they are released, surround and clamp the bristle portion in place. The bristle portion is provided with a flange around its periphery adapted to fit within a groove in the slot in the end of the brush and these grooves being continued throughout the clamping parts of the brush.

In the handle portion of the brush is a hole into which coloring matter can be poured and retained. The different color will indicate the different ownership of the brush.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description

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and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

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

Fig. 1 is a front face elevational view of a toothbrush embodying certain of the features of the present invention.

Fig. 2 is a side elevational view of the brush shown in Fig. 1.

Fig. 3 is a cross sectional view taken on line 3-3 of Fig. 1.

Fig. 4 is a partial side elevational view of a modified form of brush wherein both short and long bristles are used.

Fig. 5 is a front elevational view of the brush shown in Fig. 4.

Fig. 6 is an enlarged cross sectional view taken on line 6-6 of Fig. 5.

Fig. 7 is a partial side elevational view of a brush wherein the bristles extend from opposite sides of the head end of the same.

Fig. 8 is a front elevational view of the brush shown in Fig. 7.

Fig. 9 is an enlarged cross sectional view taken on line 9-9 of Fig. 8.

Fig. 10 is a front elevational view of a brush with a detachable head portion illustrating in dotted lines how the clamp members are hinged outwardly to receive the bristle portion.

Fig. 11 is an enlarged plan view of the head end of the toothbrush handle showing the slot adapted to receive the bristle portion, with the clamping elements expanded or separated from each other.

Fig. 12 is a longitudinal cross sectional view taken on line 12-12 of Fig. 11.

Fig. 13 is a side elevational view of the bristle portion.

Figs. 14 and 15 are respectively modified forms of bristle portions.

Fig. 16 is a transverse cross sectional view taken on line 16-16 of Fig. 11.

Fig. 17 is a perspective view looking upon the clamping elements of the slotted retaining portion for the bristle elements.

Referring now particularly to Figs. 1 to 3, 21 represents a brush handle having a hole 22 extended in from the end thereof. Into this hole 22, there may be inserted coloring matter which will identify the particular brush being used. The brush is made of molded plastic of the transparent type and the coloring matter within the hole 22 will appear therethrough. On the forward end of the handle is a brush head portion

23 having bristles 24 thereon. This head portion 23 has a wide and round formation 25 at its forward end whereby to provide a section of the brush on which the tooth paste can be disposed and easily retained and at the same time provide additional brush bristles to better massage the gums.

Referring now particularly to Figs. 4, 5 and 6, there is shown a modified form of the arrangement wherein the handle and the head portion are of the same shape except that bristles 24' on the round section are longer than the short bristles 24 on the narrow section of the brush head.

Referring now to Figs. 7, 8 and 9, there is shown an arrangement similar to the brush of Fig. 4 except that the bristles extend from opposite sides of the head portion. The bristles 24' are located in the large round section on the forward end of the brush head.

Referring now particularly to Figs. 10 to 17, there is shown a brush with a detachable head portion which can have different bristle arrangements thereon. This brush has the usual handle 21 with the hole 22 extended in from the end thereof for containing coloring matter and a narrow slot 31 for receiving a brush element 32. The brush element 32 has a narrow portion 33 and a wide round portion 34. The bristles 24 can be short, as shown in Fig. 13, or short and long and extending from only as shown in Fig. 15, or short and extending from opposite sides, as shown in Fig. 14.

The brush element is provided with a flange 34 extending therearound adapted to fit a groove 35 in the slot whereby to retain the brush element against vertical displacement within the brush slot. The round section of the brush element is clamped in place by hinged clamping pieces 36 adapted to be separated, as shown in Figs. 10 and 11, to permit the insertion of the brush element and then swung inwardly to enclose the round section thereof. These clamping pieces are hinged by means of a spring strip 37 embedded in the pieces 36 and in the integral portions of the head extending from the handle. These pieces have also grooves 35' for receiving the flange projection 34 of the brush element. The clamping pieces 36 are substantially of half circular shape and their ends will abut one another as they surround the round section of the head element.

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 constructions 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. In a toothbrush having a handle portion, a brush element having a narrow section and a circular section having a diameter greater than the width of said narrow section, the handle portion being formed with a slot extended in from one end thereof and having a width corresponding to the width of said narrow section and a length corresponding to the length of said narrow section and dividing the said end of the handle portion into spaced tines which extend along the opposed sides of said narrow section, means on the adjacent faces of said narrow section and said tines limiting said brush element to longitudinal sliding relative to the handle portion, and means on the free ends of said tines and engaging said circular section retaining said brush element against longitudinal sliding relative to the handle portion, said latter means comprising opposed semi-circular clamping pieces engaging diametrically opposite sides of said circular section, and resilient means hingedly connecting said clamping pieces to the ends of said tines and biasing said clamping pieces into facial contact with the diametrically opposite sides of said circular section, and interengaged means on said clamping pieces and said circular section of the brush element retaining said clamping pieces against movement in a plane at right angles to the plane of said brush element.

2. In a toothbrush having a handle portion, a brush element having a narrow section and a circular section having a diameter greater than the width of said narrow section, the handle portion being formed with a slot extended in from one end thereof and having a width corresponding to the width of said narrow section and a length corresponding to the length of said narrow section and dividing the said end of the handle portion into spaced tines which extend along the opposed sides of said narrow section, means on the adjacent faces of said narrow section and said tines limiting said brush element to longitudinal sliding relative to the handle portion, and means on the free ends of said tines and engaging said circular section retaining said brush element against longitudinal sliding relative to the handle portion, said latter means comprising opposed semi-circular clamping pieces engaging diametrically opposite sides of said circular section, and resilient means hingedly connecting said clamping pieces to the ends of said tines and biasing said clamping pieces into facial contact with the diametrically opposite sides of said circular section.

3. In a toothbrush having a handle portion, a brush element having a narrow section and a circular section having a diameter greater than the width of said narrow section, the handle portion being formed with a slot extended in from one end thereof and having a width corresponding to the width of said narrow section and a length corresponding to the length of said narrow section and dividing the said end of the handle portion into spaced tines which extend along the opposed sides of said narrow section, means on the adjacent faces of said narrow section and said tines limiting said brush element to longitudinal sliding relative to the handle portion, and means on the free ends of said tines and engaging said circular section retaining said brush element against longitudinal sliding relative to the handle portion, said latter means comprising opposed semi-circular clamping pieces engaging diametrically opposite sides of said circular section, and resilient means hingedly connecting said clamping pieces to the ends of said tines and biasing said clamping pieces into facial contact with the diametrically opposite sides of said circular section, said resilient means comprising spring strips having their ends embedded in adjacent ends of said tines and said clamping pieces.

4. In a toothbrush having a handle portion, a brush element having a narrow section and a circular section having a diameter greater than the width of said narrow section, the handle portion being formed with a slot extended in from one end thereof and having a width corresponding to the width of said narrow section and a length corresponding to the length of said narrow section and dividing the said end of the handle portion into spaced tines which extend along the opposed sides of said narrow section, means on the adjacent faces of said narrow section and said tines limiting said brush element to longitudinal sliding relative to the handle portion, and means on the free ends of said tines and engaging said circular section retaining said brush element against longitudinal sliding relative to the handle portion, said latter means comprising opposed semi-circular clamping pieces engaging diametrically opposite sides of said circular section, and resilient means hingedly connecting said clamping pieces to the ends of said tines and biasing said clamping pieces into facial contact with the diametrically opposite sides of said circular section, and interengaged means on said clamping pieces and said circular section of the brush element retaining said clamping pieces against movement in a plane at right angles to the plane of said brush element.

5. In a toothbrush having a handle portion, a brush element having a narrow section and a circular section having a diameter greater than the width of said narrow section, the handle portion being formed with a slot extended in from one end thereof and having a width corresponding to the width of said narrow section and a length corresponding to the length of said narrow section and dividing the said end of the handle portion into spaced tines which extend along the opposed sides of said narrow section, means on the adjacent faces of said narrow section and said tines limiting said brush element to longitudinal sliding relative to the handle portion, and means on the free ends of said tines and engaging said circular section retaining said brush element against longitudinal sliding relative to the handle portion, said latter means comprising opposed semi-circular clamping pieces engaging diametrically opposite sides of said circular section, and resilient means hingedly connecting said clamping pieces to the ends of said tines and biasing said clamping pieces into facial contact with the diametrically opposite sides of said circular section, said resilient means comprising spring strips having their ends embedded in adjacent ends of said tines and said clamping pieces.

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length corresponding to the length of said narrow section and dividing the said end of the handle portion into spaced tines which extend along the opposed sides of said narrow section, means on the adjacent faces of said narrow section and said tines limiting said brush element to longitudinal sliding relative to the handle portion, and means on the free ends of said tines and engaging said circular section retaining said brush element against longitudinal sliding relative to the handle portion, said latter means comprising opposed semi-circular clamping pieces engaging diametrically opposite sides of said circular section, and resilient means hingedly connecting said clamping pieces to the ends of said tines and biasing said clamping pieces into facial contact with the diametrically opposite sides of said circular section, and flanges projecting laterally from the sides of said circular section, said clamping pieces having complementary grooves in their inner faces engaged by said flanges retaining said clamping pieces against movement in a plane at right angles to said brush element.

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