Dec. 22, 1936. I. SEKINE 2,064,860

BRUSH

Filed March 6, 1935

Fig. 2.

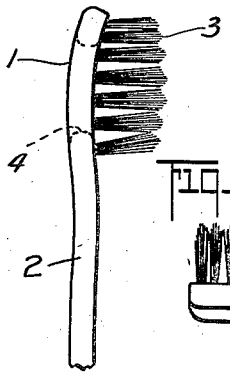


Fig. 1.

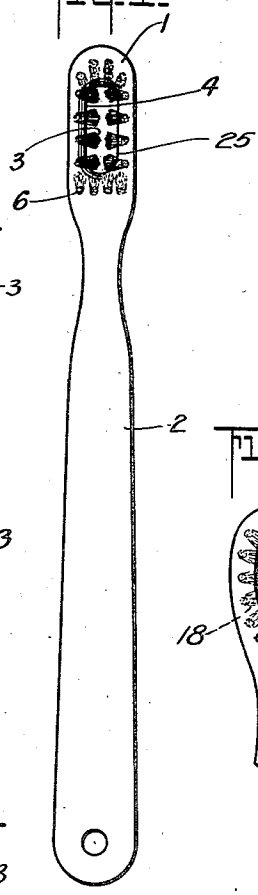


Fig. 3.

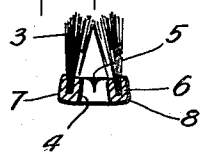


Fig. 5.

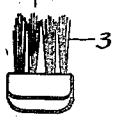


Fig. 4.

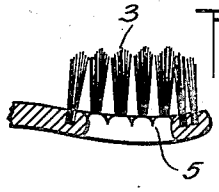


Fig. 6.

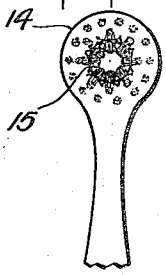


Fig. 7.

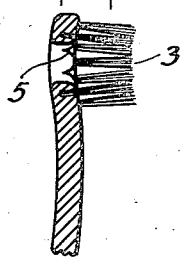


Fig. 8.

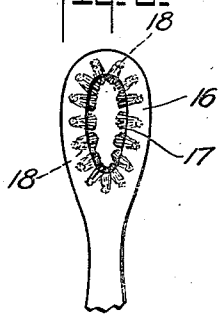


Fig. 9.

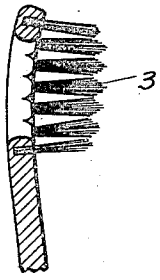


Fig. 10.

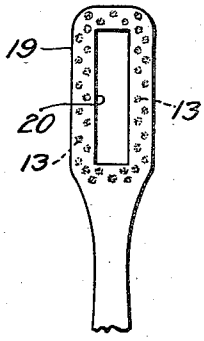
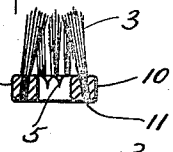


Fig. 11.



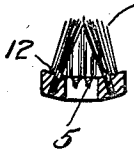


Fig. 12.

Fig. 13.

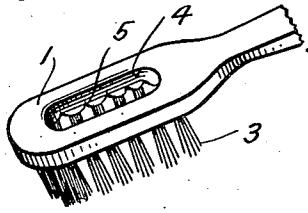
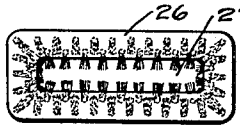


Fig. 14



INVENTOR

IOJI SEKINE

BY

James Harrison Bowen

ATTORNEY

Patented Dec. 22, 1936 2,064,860

UNITED STATES PATENT OFFICE

2,064,860

BRUSH

Ioji Sekine, Freeport, N. Y.

Application March 6, 1935, Serial No. 9,549

1 Claim. (Cl. 15—167)

The purpose of this invention is to provide means in a brush whereby the bristles will dry rapidly, so that their original stiffness may be maintained, and also to provide a brush in which the central part of the brush is open, so that it may be more easily washed and cleaned to make it more sanitary.

The invention is a brush having a comparatively large opening through the central portion of the back of the head with drain grooves in the inner edges of the sides of the head for draining water from the bristles, providing a brush with bristles at the sides and ends only, with the comparatively large opening to facilitate circulation of air through the bristles to expedite drying and cleaning, and also eliminating all small holes, corners and crevices in which dirt and germs may lodge.

Some tooth brushes have been made with three or four rows of bristles, and the the tufts of bristles have been made comparatively close, so that it is difficult to clean the inner bristles, and such brushes provide breeding places for germs, as well as corners in which paste may accumulate. Other brushes have been provided with openings thru the back of the head, and some have long, narrow slits and, whereas the openings and slits make it possible for air to pass thru the central portion of the brush when the brush is new, these openings have been made in flat surfaces and without means for breaking the surfaces thereof and are so small that tooth paste accumulates therein, and it is substantially impossible to clean it out. These very small openings, when partly filled, provide safe retreats for germs, so that such brushes are comparatively unsanitary. The advantage of comparatively large openings, or with the whole central portion of the brush open and with drain grooves in the inner edge of the openings, is therefore obvious.

The object of the invention is, therefore, to provide an opening or openings thru the back of a brush for facilitating draining of the water therefrom and drying of the bristles and increasing sanitation, which does not permit space for the accumulation of tooth paste, dirt, or the like, or a breeding place for germs, or the like.

Another object is to provide a brush having means permitting rapid circulation of water thru the bristles thereof, and also rapid drainage of said water.

Another object is to provide a brush having an opening in the head in which the edges are shaped to facilitate the passage of water, or the like, therethru.

A further object is to provide means for facilitating the drying of the bristles of a tooth brush without providing substantially obscure crevices for germs, or the like.

And a still further object is to provide a tooth brush having an opening thru the head thereof which is of a simple and economical construction.

With these ends in view the invention embodies a brush having a comparatively large opening or openings in the central part of the brush and extending thru the back thereof, and with drain grooves in the inner edges of the openings.

Other features and advantages of the invention will appear from the following description, taken in connection with the drawing, wherein:

Figure 1 is a plan view showing the back of a tooth brush with the opening in the head thereof.

Figure 2 is a side elevation of the head of the brush shown in Figure 1.

Figure 3 is a cross section thru the head of the brush showing the shape of the material of which the head is formed and also the position of the bristles therein.

Figure 4 is a longitudinal section thru the head of the brush.

Figure 5 is an end view looking toward the end of the brush.

Figure 6 is a view showing a brush of an alternate design in which the head is circular.

Figure 7 is a cross section thru the brush shown in Figure 6.

Figure 8 is a view showing a brush of another alternate design in which the opening in the head is somewhat pear-shaped.

Figure 9 is a side sectional view of the brush shown in Figure 8.

Figure 10 is a view showing the head of a brush having an opening of an alternate design.

Figure 11 is a cross section thru a brush head showing the bristles held in inclined openings.

Figure 12 is a similar view showing the sides of a brush head inclined and with two rows of bristles therein, and showing an alternate design in which the grooves are omitted at the end of the brush where there are no bristles.

Figure 13 is a perspective view showing the brush head of the type shown in Figure 1.

Figure 14 is a view showing a brush of an alternate design which may be used as a hand brush, nail brush, hair brush, or general utility brush, or for any other purpose, and this may be made of any design.

In the drawing the brush is shown as it may be made wherein numeral 1 indicates the head,

numeral 2 the handle, and numeral 3 bristles adapted to be mounted in the head.

The head 1 may be of any shape or design, may be provided with a handle of any type, and any means may be used for holding bristles therein. In the design shown in Figure 1, the head is of a somewhat rectangular shape with a comparatively large slot 4 in the central part thereof, and the bristles 3 may be inserted at the points 6, which extend continuously around the head. The head 1 may be shaped as shown in Figure 1, or may be round, as shown in Figure 6, or of a pear shape, as shown in Figure 8, or of any other shape or design. The width of this opening is equal to about half of the width of the brush head, altogether, it will be understood that it may be of any width of length, depending upon the size of the brush head and providing sufficient material for the bristles at the sides thereof. This opening is of sufficient size to permit water to readily flow therethru in order to wash the interior of the brush, and the water may, therefore, be forced thru the back and in around the bristles, and it will be noted that special indentations 5 are provided to facilitate the water passing to the bristles and also to facilitate its draining therefrom. The head is shaped in this manner so that water may readily be forced to the bristles and also so that it may, just as readily, evaporate or dry away from the bristles.

The brush may be provided with a handle of any other type or design and this may be made integral with the head, as shown, or attached thereto, or formed in any manner. It will also be understood that the brush head may be used with handles of different types, such as folding, and it may therefore be used for any other purpose.

The bristles 3 may be inserted in openings 6 at the sides and ends of the head, and these may extend continuously around the opening 4, as shown. It is preferred to slope these bristles inward, thereby providing a very small space between the free ends thereof, so that they will substantially cover the opening and prevent tooth paste dropping therethru. These bristles may be made to slope inward by shaping the sides 7 and 8 of the head, as shown in Figure 3, in order to hold the bristles of the brush in a slightly inclined position. It will also be understood, however, that the head of the brush may be flat, as shown in Figure 11, in which the sides are indicated by the numerals 9 and 10, and sloping openings 11 may be provided in the sides 9 and 10 so that the bristles may be made to slope inward in a flat head. These bristles may be provided in a single row, as shown in Figures 1, 8 and 11, or they may be provided in a double row, as indicated by the numeral 12, and shown in Figure 12. The bristles may also be staggered, as indicated by the numeral 13, as shown in Figure 10. However, it will be understood that the bristles may be formed in any manner, and any means may be used for sloping the upper ends thereof in toward the center.

The brush head may be flat, or may be concave or convex, or of any shape, and the bristles may be provided in any shape thereon. It will also be understood that bristles of any type or design may be used, and also that very fine bristles or inexpensive bristles may be used to provide brushes of any quality desired. The outer end of the bristles may also be shaped to conform to a straight line, or may be concave or convex, or the bristles at the outer or inner end may be longer or shorter, so that brushes may be provided of any type and for any purpose.

In the design shown in Figures 6 and 7, the brush head 14 is made of a circular shape with a circular opening 15 in the center, and the bristles are arranged around the opening and positioned to slope inward toward the center, as shown in Figure 7. In this design a double row of bristles is shown, however, it will be understood that a single row may also be used, or the bristles may be arranged in any other manner. In the design shown in Figures 8 and 9, the head, which is indicated by the numeral 16, is of a somewhat pear shape, with a similarly shaped opening 17 in the center, and the bristles are positioned around the opening, as indicated by the dotted lines 18.

A rectangular shaped head 19 is shown in Figure 10, and this is provided with a similarly shaped opening 20 in the center, and the bristles are arranged around the opening. The bristles, in this design, may also be arranged in any manner, and either one or two rows of bristles may be used.

It will be understood that other changes may be made in the construction without departing from the spirit of the invention. One of these changes may be in the use of this opening in a brush of any other type and adapted to be used for any other purpose, another may be in the use of an opening of fanciful designs adapted to ornament the head of the brush, and still another may be in the use of any other arrangement of the bristles around the opening.

The construction may readily be understood from the foregoing description. In use the brush may be provided as shown and described, and it will be noted that with the bristles mounted in each side of the opening and slanting inward, as shown in Figure 3, tooth paste may be placed upon the bristles and the brush may be used in the usual manner. When it is desired to clean the brush, it may be held under the faucet and it will be noted that water rushing thru the comparatively large opening in the back will thoroughly circulate around the bristles and completely wash the inner surfaces thereof, particularly at the intersection of the bristles with the head.

The outer edge of the opening is rounded, as shown at the point 25 in Figure 1, and the inner edge is provided with notches 5, as shown in Figure 4, to facilitate the water working around the bristles, and also to facilitate the water draining therefrom, as the essential object of this invention is to permit the bristles to dry as rapidly as possible, and with substantially the entire back open, air will very readily pass thru the back and bristles so that the bristles will be dried by the air in the least possible time. Keeping the bristles dry, or permitting them to dry as rapidly as possible, makes it possible to retain the stiffness of the bristles and, therefore, extends the life of the brush indefinitely. Opening up the entire inside of the brush also facilitates sterilization, as it eliminates any possibility of germs lodging therein, and thereby makes it possible to provide a comparatively sanitary brush in addition to a brush in which drying is facilitated.

It will be understood that altho this opening is generally shown and described as used in a tooth brush, it may also be used or incorporated in a brush or brushes of any other type, or that may be used for any other purpose. Figure 14

shows a brush 26 having an opening 27 therein and whereas this may resemble a hand or nail brush, it may also be used, by changing the shape or proportions, for a hair brush, bath brush, scrubbing, or shoe brush, and the bristles may be made of hair, bristle, wire, or of any material, and these may be arranged in single or double rows or in any manner. The brush may also be made with or without a handle, or any holding means desired may be used, and it may be held by hand or mounted in a machine by any means, or in any manner.

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

As a new article of manufacture, a brush head of the type having a relatively large opening in the central portion thereof with bristles at the sides and ends, characterized in that drain grooves are provided in the edges of the opening, and positioned between the tufts of bristles for draining water from points around the base of the bristles, facilitating drying.

IOJI SEKINE.