Sept. 28, 1926. 1,601,217

F. R. JONES

BRUSH

Filed Nov. 17, 1924

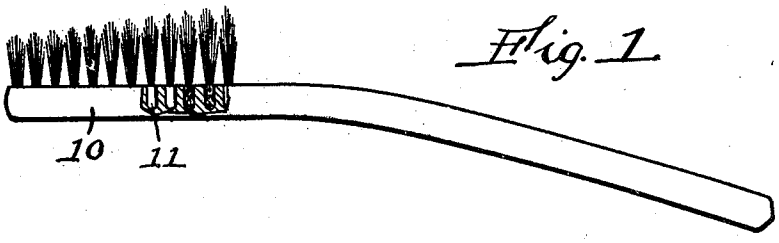


Fig. 1.

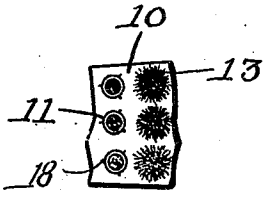


Fig. 2.

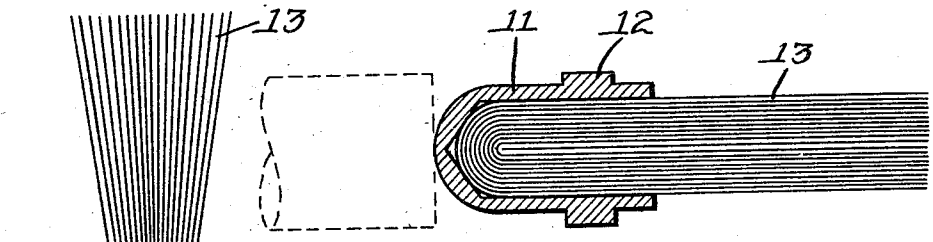


Fig. 3.

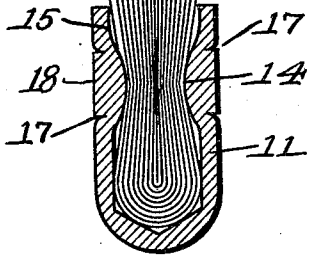


Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANK R. JONES, OF NORTHBORO, MASSACHUSETTS, ASSIGNOR TO NORTHBORO BRUSH COMPANY, OF NORTHBORO, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

BRUSH.

Application filed November 17, 1924. Serial No. 750,230.

This invention relates to a brush construction capable of general use but particularly adapted for application to a tooth brush.

The principal object of the invention is to provide a solid back tooth brush with a positive means for holding the bristles so that they can not shed. This is accomplished according to the present invention by the use of a metallic cup for the bristles and the formation of this cup in a certain way, as will appear, to hold them.

Another object of the invention is to provide a cup of this character which will not be rusted or otherwise affected by cleansing compositions that are used.

Reference is to be had to the accompanying drawings in which—

Fig. 1 is a side view of a tooth brush constructed in accordance with this invention partly in longitudinal section to show the way the bristles are held in place;

Fig. 2 is an enlarged plan view of a small portion of the brush to illustrate the way the metal cap appears in the completed brush;

Fig. 3 is an enlarged cross sectional view of the blank of which the metallic cap is formed; and

Fig. 4 is a similar view showing it in its final stage with the bristles therein.

In making a brush according to this invention I bore into the front of the solid back and set in a metallic cup for holding the bristles. A metallic cup is provided which is not affected by the various ingredients of numerous kinds of tooth paste, powders, and soaps. It is necessary to provide a way in which the bristles can be held in such a manner that there is little likelihood of their coming loose.

This invention relates to the manufacture of a high grade brush employing the best bristles that can be procured. Obviously, there is not much advantage in using high grade bristles if they will come out after a short period of use. All the problems that have been mentioned above therefore had to be solved and the ways in which they are solved in this brush co-operate with each other to produce a brush which will have a much greater durability than the ordinary brushes on the market.

Enough has been said to show that the brush back 10 which is integral with the handle and usually formed of celluloid or similar material is bored in from one side part way through only to form cavities for the reception of the metal cups which are to be used. These metal cups are formed as blanks 11 of a general cylindrical form with a closed bottom and with an annular ridge 12 around them at a small distance from the open end. This is spaced from the open end only a short distance. In order to avoid the difficulties which other metals would be subjected to, as described above, I make this blank of commercial aluminum alloy or other suitable material. This will stand all the ingredients which have yet been found in various tooth preparations and even after long use the surface of the aluminum will be of the same color and polish that it had when originally manufactured. There is no deterioration of the aluminum on the surface or even in the space which receives the bristles that can be detected. This is an important feature of the invention. I prefer to use a commercial aluminum which contains about 96 per cent aluminum.

This blank 11 is then provided with a double over tuft 13 of bristles. Then pressure is applied to the annular ring 12, by a spinning operation, or by rotating the blank and rolling a surface thereon to press the blank in or by pressing dies. The pressure forms an internal ridge 14 entirely around the bristles and containing the metal previously supplied in the form of the annular ridge 12. The exterior of the finished cup is made cylindrical and smooth, except for minute depressions 17 and longitudinal fins 18.

In this way the original diameter of the cup is retained at the mouth. By that I mean that there is a concave cylindrical wall 15 for a short distance in from the mouth that prevents the tufts from flaring too much. In this way the tufts are held in approximately parallel condition and whatever tendency they have to flare will be

checked by the confining action of the mouth of the cup.

These cups with their bristles are then inserted in the cavities in the brush blank and pressed into place. On account of the properties of the aluminum and celluloid they will be firmly held in position and there is no danger of their working loose. The fins 18, when present, further assist in holding them in place. If the cups were formed of some metal which might be affected by acids and alkalies with which they come in contact they might work out before the bristles.

This furnishes a very durable brush and one in which the back and the fastening of the bristles is sure to last as long as the bristles themselves and there can be no shedding of them. Furthermore, no anchor is required in the bottom of the doubled over tufts. It will be understood, of course that with this firm manner of securing the bristles in the cup, a doubled over tuft of bristles is not absolutely necessary. If the bristles are set in, in one length, they will also be held firmly in the space but I prefer to double them. This constitutes a very high class, durable brush that is sanitary and not as expensive as many other brushes that have been put on the market.

I am aware of the fact that the same principles can be employed for other brushes than tooth brushes and do not wish to be limited thereto except as expressed in the claims. Although I have illustrated and described only a single form of the invention, I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. As an article of manufacture, a brush made up of a back and a series of tufts of bristles and a cup having a solid bottom in which each tuft of bristles is set, the opening of each cup being of substantially cylindrical bore and long enough to hold the bristles substantially straight and parallel at the circumference of the tuft and prevent flaring, and an inwardly extending circumferential ridge on the inner wall at a distance below the rim of the cup for holding the bristles permanently therein, the outer surface of the cup being of approximately uniform size throughout its length.

2. As an article of manufacture, a tuft of bristles and a cup in which the tuft of bristles is set, the inner wall of said cup having a circumferential ridge at a distance below the open end for holding the bristles therein, the outer surface of the cup being cylindrical and of approximately uniform diameter, from the open end thereof to and below said circumferential ridge.

3. The method of making a tuft of bristles which consists in forming a metallic cup of substantially cylindrical bore with a solid bottom and an annular ridge around the cup at a short distance from its open end, inserting a doubled over tuft of bristles into said cup and then pressing the ridge inwardly and uniformly all around until it is flush on the exterior so as to form an internal ridge at a distance from the end for holding the bristles.

In testimony whereof I have hereunto affixed my signature.

FRANK R. JONES.