

1,054,161.

Patented Feb. 25, 1913.

FIG. 1.

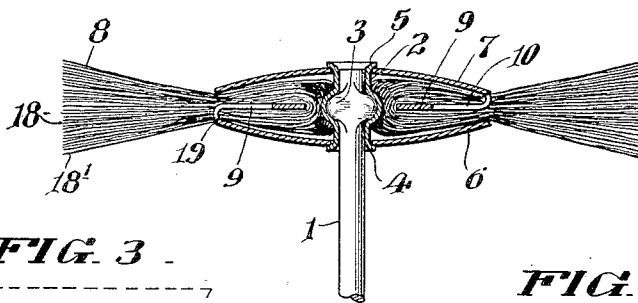


FIG. 3.

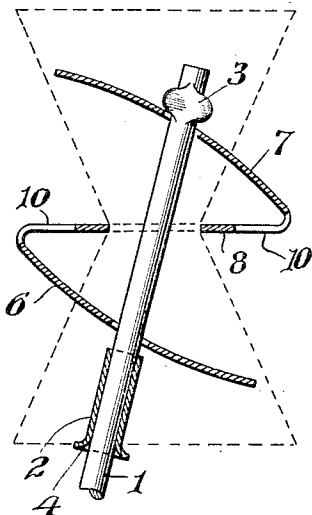


FIG. 2.

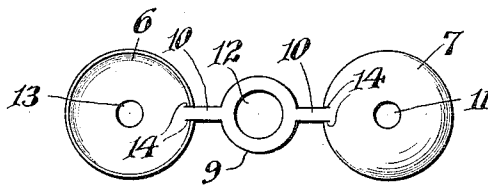


FIG. 5.

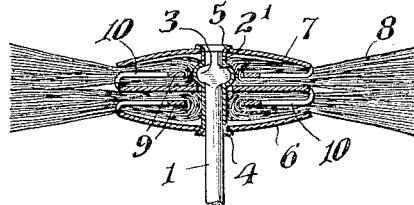
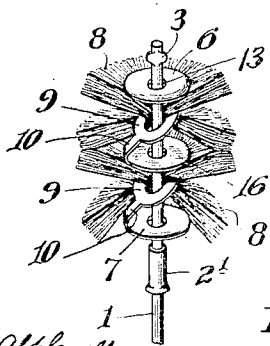


FIG. 6.



Witnesses

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FIG. 4.

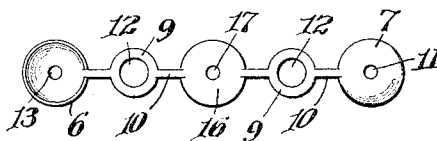
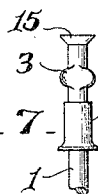


FIG. 7.



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BRUSH-BLANK.

1,054,161.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed June 16, 1911. Serial No. 633,519.

To all whom it may concern:

Be it known that I, JAMES HERMAN ABBOTT, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have
5 invented a certain new and useful Brush-Blank, of which the following is a specification.

The purpose of my invention is to secure a bristle-holding ring to the dished plates
10 forming the ends of my brush in such a way as automatically to bring the parts into proper position and relation during assemblage, and to stiffen the plates by connection with the ring.

15 A further purpose of my invention is to use a ring for guiding and retaining the bristles and to connect this ring with each adjoining plate.

A further purpose of my invention is to make continuous assembly of brush parts for thick brush-making simple and effective.

I prefer to illustrate my invention by that form thereof which I have found to be simple, cheap and effective.

25 Figure 1 is a central longitudinal section of a structure embodying my invention. Fig. 2 is a top plan view of the dished plates and intermediate ring of Fig. 1 in the form of a blank. Fig. 3 is a section of some of the parts of Fig. 1 partly assembled. Fig.
30 4 is a view similar to Fig. 2 of a blank for a thicker brush. Fig. 5 is a central longitudinal view of a brush made from a blank such as is shown in Fig. 4. Fig. 6 is a perspective view of the parts of Fig. 5 in process of assemblage. Fig. 7 is a side elevation of a spindle and tube of modified form.

Similar numerals of reference indicate like parts in the drawings.

40 1 designates a spindle upon which is mounted a tubular member 2 by means of the change of contour at 3, described and claimed by me in a copending application, Ser. No. 633,518, of even date herewith. The
45 enlargement of the spindle in one direction at the point 3 with intermediate hollowing results in corresponding shaping of the tubular member as the spindle passes thereover and re-formation of the tubular member therebeyond. The ends 4 and 5 of the tubular member are shown as flared to hold
50 plates 6 and 7 in place, gripping the bristles 8 between their outer edges.

My invention resides primarily in the relation existing between adjoining plates 6

and 7 and a guiding and bristle-retaining ring 9 which lies between them and is connected with the two plates preferably at opposite sides of the ring, by means of strips
10. The initial construction is best illustrated in Fig. 2, where the parts are seen in their form as stamped by a single pair of dies. The plates 6 and 7 are oppositely hollowed or dished, thus departing from true disk form. The plate 6 is shown as concaved toward the observer, while the plate
65 7 is convex toward him.

In assemblage, the ring 9 is threaded with the required quantity of bristles of appropriate length. The plate 7 is then bent
70 slightly away from the observer and the spindle 1 is inserted through the opening 11. The inner end of the spindle is then pressed into the body of the bristle from the side and passed through the opening 12 of
75 the ring toward the observer. The plate 6 is then bent toward the observer sufficiently for the spindle 1 to be passed through its opening 13.

The plates 6 and 7 upon opposite sides of
80 the ring 9 result in the spindle passing at all times through the center of the ring and automatically distribute the bristles uniformly about the ring. I prefer to make the rings large enough so that there shall be plenty of
85 room for the bristles, spindle and tube as the bristles will then distribute well and no clamping or gripping of the bristles is needed here. The bristles are held by the grip of the outer parts of the dished plates,
90 nearest to the ends of the bristles and, hence, to the point at which they do their work.

Obviously, any of a variety of fastening means could be used for retaining the parts.
95 With the form shown, the tubular member 2 is then threaded upon the spindle. As the parts are pressed together, the automatic division of the bristles about the circumferences of the plates 6 and 7 is continued and
100 it is completed when the spindle becomes approximately perpendicular to the plane of the ring. In experience, this division is not interfered with by the connections 10, which are so small as not to form an appreciable interruption to the uniformity of the
105 bristle distribution about the brush. The effect of these connections upon the appearance of the brush is still further reduced by the slits 14 which permit the bend of the
110

metal to occur at or inside of the edge of the plates 6 and 7.

The parts are preferably pressed together at the same time that the tubular member 2 is pushed through the plates 6 and 7. The spindle is pressed downwardly to the position shown in Fig. 1, either before or after or during the time that the tubular member 2 is pressed to place. The flared end 4 presses against one of the plates and the other plate is held by the expansion of the other end of the tube at 5 or by a projection, preferably annular, at any desired point upon the spindle, which projection becomes a head where it is at the end of the spindle as at 15 in Fig. 7. The operations described are readily performed by means of a single set of dies and at one movement.

In the form shown in Fig. 4, I have indicated the blank used by me in making a thick brush such as is shown in Fig. 5, this being in effect a double brush, as it contains twice the quantity of bristles contained in the brush of the type shown in Fig. 1.

The blank shown in Fig. 4 will be seen to consist of two blanks of the type shown in Fig. 2, except that I prefer to use a single flat spacing plate or disk 16 at the center instead of the two reversely dished plates convex toward each other, which would here be found if a mere duplication of the blank of Fig. 2 were presented. This gives a more compact brush with the bristles closer together at the middle of the cylindrical surface formed.

The manner of assemblage is the same as that described in connection with the single brush except that bristles are threaded through both of the rings 9, and that the path of the spindle 1 follows the course of passage through opening 11, into the bristles of ring 9 and through its opening 12, through opening 17 of plate or disk 16, into the bristles and through the opening 12 of the second ring 9 and through the opening 13 of the inner plate 6. The bristles divide, as before, about the circumferences of the two plates 6 and 7, distributing also about the intermediate spacing disk 16 to form a double brush. This is not merely two brushes placed together, but differs therefrom by having its center line stiffened by an increased quantity of bristle there, since

the bristles shown in Fig. 1 as lying between 18 and 18', Fig. 1, in the two brush parts, are pressed against each other with a spacing at the point 19 corresponding to but a single thickness of metal. If two brushes were placed together there would be a spacing corresponding to the double thickness of metal as well as the convexities of the two outer plates.

In Fig. 6 I have shown the parts of Fig. 4 in partially assembled position with the spindle inserted and tube upon it.

As will be noted from Fig. 5, the tube 2', here shown, has a length corresponding to the thickness of the complete brush, but is held by a single fastening 3 of the form shown in Fig. 3. A short tube 2" could be used at either end, the two cooperating with each other or either cooperating with a swelled part upon the spindle at any point, one example of which is seen in the head 15 in Fig. 7.

It will be evident that my construction connects all of the metal parts of the brush, guides and centers the spindle therein and secures distribution of the bristles about the same, whatever the thickness of the brush, and that thick brushes are well supported, compact, firm and easily constructed by my invention.

Obviously, my brush is not confined to use upon the end of the spindle and may be made in any thickness desired according to the quantity of bristle upon each ring and the number of rings and spacing plates employed.

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

1. In a device of the character stated, a brush blank, comprising outer bristle-retaining brush plates oppositely dished, a ring and a connection from each plate to the ring.

2. In a device of the character stated, a brush blank comprising bristle-clamping plates, rings connected therewith and spaced therefrom and a plate spaced from each of said rings and connected thereto.

JAMES HERMAN ABBOTT.

Witnesses:

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HELEN I. KAUFFMAN.