

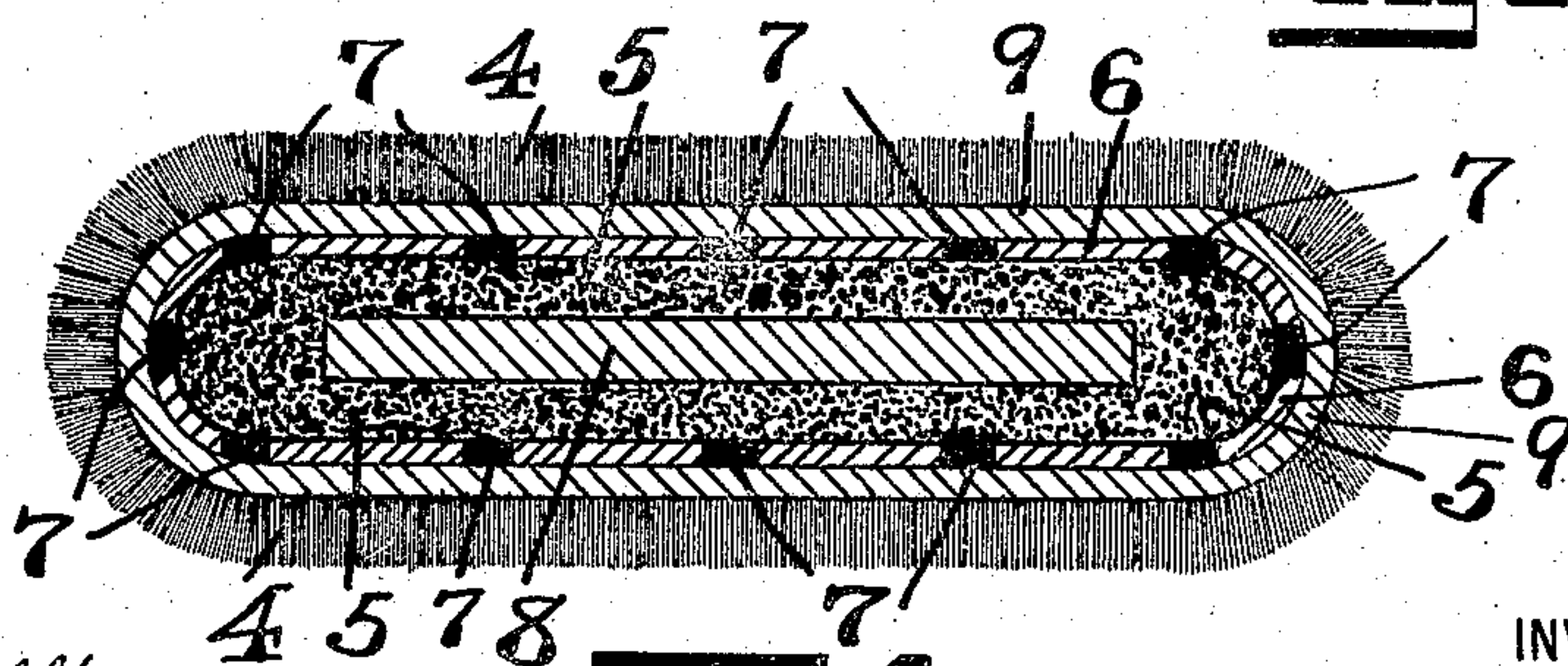
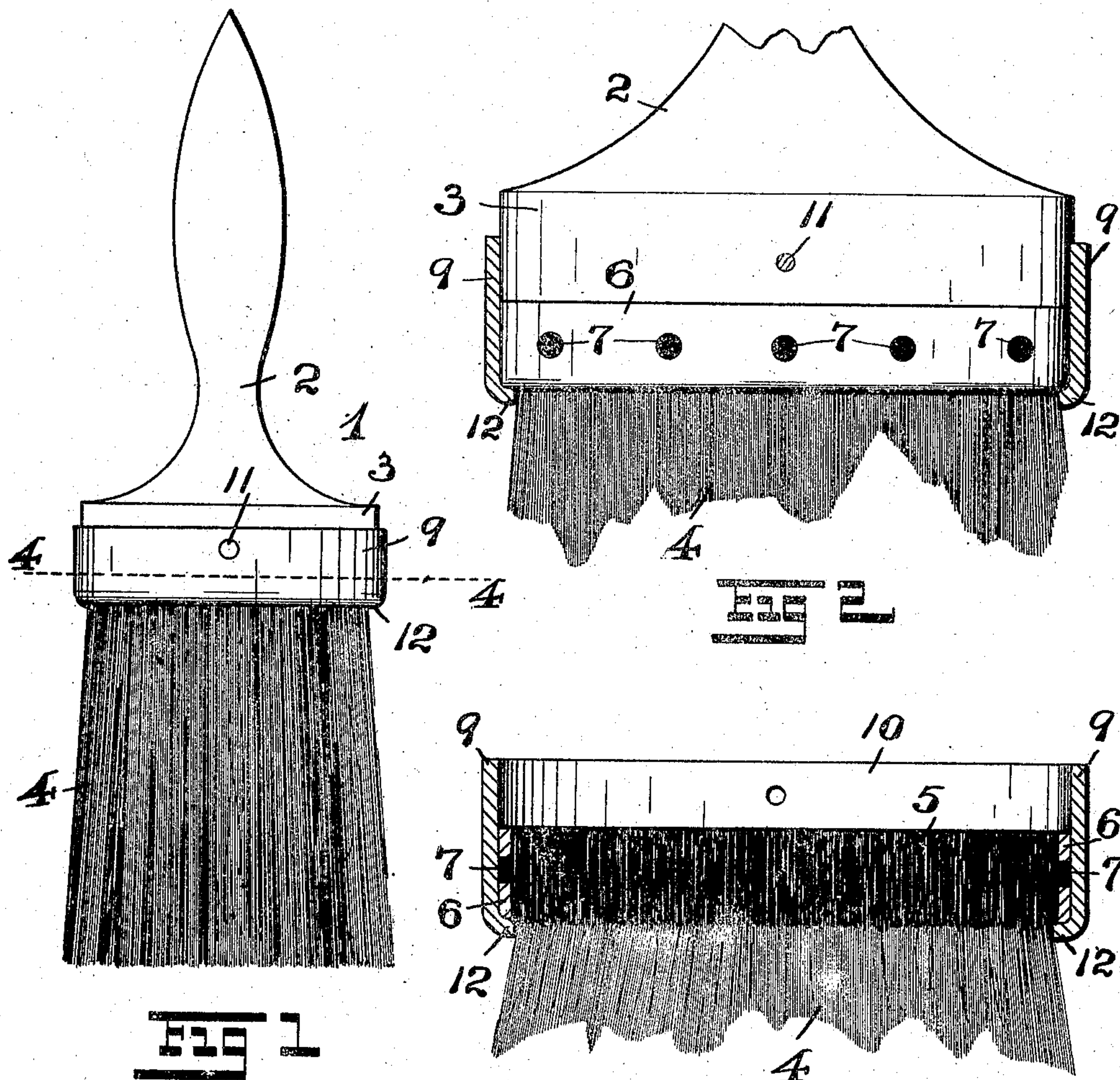
No. 840,693.

PATENTED JAN. 8, 1907.

F. GRAUL.

BRUSH.

APPLICATION FILED SEPT. 19, 1906.



WITNESSES:  
Anna H. Alter.  
Frederick Jamison

INVENTOR:  
Frederick Graul

BY  
Fraentzel and Richards,  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

FREDRICK GRAUL, OF NEWARK, NEW JERSEY, ASSIGNOR TO RUBBER AND CELLULOID HARNESS TRIMMING CO., A CORPORATION OF NEW JERSEY.

## BRUSH.

No. 840,693.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed September 19, 1906. Serial No. 335,173.

*To all whom it may concern:*

Be it known that I, FREDRICK GRAUL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Brushes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as

will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

The present invention relates generally to improvements in the manufacture of brushes of the various kinds; and the invention relates more particularly to a novel construction of brush comprising a bunch of bristles having a knot or upper end surrounded by a metal band or ferrule and an improved means for positively and permanently securing the knot within said ferrule against displacement and an outer ferrule arranged over said inner ferrule for uniting the handle to the bunch of bristles.

The present invention has for its principal object to provide a novel brush of the character hereinafter more particularly set forth, and, furthermore, to provide a brush comprising a bunch of bristles having a knot or upper end surrounded by a band or ferrule, the latter being provided with retaining perforations or openings, the rubber-dipped knot and said band being tightly united during the process of vulcanizing said knot, said band or ferrule serving to compress the knot and maintain its shape, at the same time forcing some of the soft-rubber cement into said perforations or openings, in which it hardens and provides a perfect lock between the knot of the bristles and the ferrule or band.

Other objects of this invention not at this time more particularly mentioned will be clearly understood from the following detailed description of the same.

With these various objects of my present invention in view the said invention consists, primarily, in the novel brush hereinafter set forth; and, furthermore, this invention consists in the various arrangements and combinations of devices and parts hereinafter more

fully described and then finally embodied in the clauses of the claim which are appended to and which form an essential part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a face view of a brush embodying the principles of the present invention. Fig. 2 is a view, made on an enlarged scale, of the brush, showing the outer band or ferrule in vertical section, the inner band or ferrule, the knot of the bunch of bristles, and the butt-end of the handle being shown in elevation; and Fig. 3 is a longitudinal vertical section of these parts with the bunch of bristles shown in elevation and with the handle removed. Fig. 4 is a horizontal section, on an enlarged scale, said section being taken on line 4 4 in Fig. 1.

Similar characters of reference are employed in the above-described views to indicate corresponding parts.

Referring now to the said drawings, the reference character 1 indicates the complete brush, the same comprising a handle 2 of any suitable and desired configuration and which may be made of wood or other material. The said handle is formed with a butt or end portion 3. The bunch of bristles, hair, fibers, or the like is indicated by the reference character 4, and 5 is the soft-rubber-dipped knot.

The inner metal band or ferrule is indicated by the reference character 6, and the same is provided with suitably-disposed perforations or openings, as 7. The numeral 8 indicates a plug of wood or other suitable material which is sometimes arranged in the soft-rubber-dipped knot to provide the bunch of bristles with the usual and centrally-disposed space within the bunch of bristles for rendering the bunch more pliable to action during the forward and backward strokes of the brushes while painting, brushing, or the like. The said inner ferrule or band 6 is arranged within an outer band or ferrule 9 substantially as shown, the said outer band or ferrule having its upper portion extending above the said inner ferrule, so as to provide a receiving-socket 10, in which the butt or end portion 3 of the handle



is arranged and secured in any suitable manner, and preferably by means of a pin or rivet 11, substantially as illustrated in Figs. 1 and 2 of the drawings. The said outer ferrule or band is usually provided with a lower marginal and inwardly-bent flange 12, which flange rests against the lower marginal edge of the inner ferrule, substantially as shown in Figs. 2 and 3 of the drawings and the purpose of which is clearly evident.

The method of making the brush, briefly, is as follows: Into the said inner ferrule or band 6, which may be of any suitable configuration according to the kind of brush which it is desired to make, I stack a sufficient quantity of bristles, fibers, hairs, or the like, leaving the knot end of the bunch of bristles extending from the ferrule. This knot end is then dipped into a soft-rubber cement for cementing together the ends of the fibers or bristles. This liquid cement is usually an india-rubber or other suitable solution adapted for the purpose of vulcanization and producing a hard-rubber-set knot in which the ends of the bristles are to be firmly embedded. After the knot has thus been soft-rubber-dipped the inner ferrule or band 6 is slipped down over the treated knot formed by the united bristle ends, thereby sufficiently compressing the soft mass and producing a compressed and solid soft-rubber-dipped knot. Some of the soft-rubber cement will be forced into the perforations or openings 7 of the ferrule 6, as shown in Figs. 2, 3, and 4 of the drawings, completely filling up said perforations. The metal-band soft-rubber-dipped knot of the bunch 4 is then placed upon a steam or other heated table and vulcanized, thus forming a hard knot in which the ends of the bristles are set and the vulcanized and hard rubber contained in the perforations or openings 7 of the ferrule 6 providing a positive retaining means for securely retaining the knot within the inner ferrule or band 6, as will be clearly evident. When the knot has thus been secured within the inner ferrule or band 6, the outer band or ferrule 9 is arranged over said band or ferrule 6 and the butt-end of the hand inserted in the space or socket 10 thus formed, the parts being operatively secured in their as-

sembled relation in the manner previously set forth.

I claim—

1. A brush comprising a handle and a bunch of bristles, a band surrounding the knot of said bunch of bristles, said band being provided with openings, a cement hardened between the knot ends of said bunch of bristles and said cement extending into and being hardened in the openings of said band, substantially as and for the purposes set forth.

2. A brush comprising a handle and a bunch of bristles, a band surrounding the knot of said bunch of bristles, said band being provided with openings, a rubber cement hardened between the knot ends of said bunch of bristles, said cement extending into and being vulcanized in the openings of said band, substantially as and for the purposes set forth.

3. A brush comprising a handle provided with a butt, a bunch of bristles, an inner metal band surrounding the knot of said bunch of bristles, said band being provided with openings, a cement hardened between the knot ends of said bunch of bristles, said cement extending into and being hardened in the openings of said inner band, and an outer band surrounding the said inner band and the butt of said handle, substantially as and for the purposes set forth.

4. A brush comprising a handle provided with a butt, a bunch of bristles, an inner metal band surrounding the knot of said bunch of bristles, said band being provided with openings, a rubber cement hardened between the knot ends of said bunch of bristles, said cement extending into and being vulcanized in the openings of said inner band, and an outer band surrounding the said inner band and the butt of said handle, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 14th day of September, 1906.

FREDRICK GRAUL.

Witnesses:

R. J. MATCHES,

FREDK. C. FRAENTZEL.