No. 831,340. PATENTED SEPT. 18, 1906.

F. GRAUL.

BRUSH.

APPLICATION FILED AUG. 24, 1904.

Fig. 1

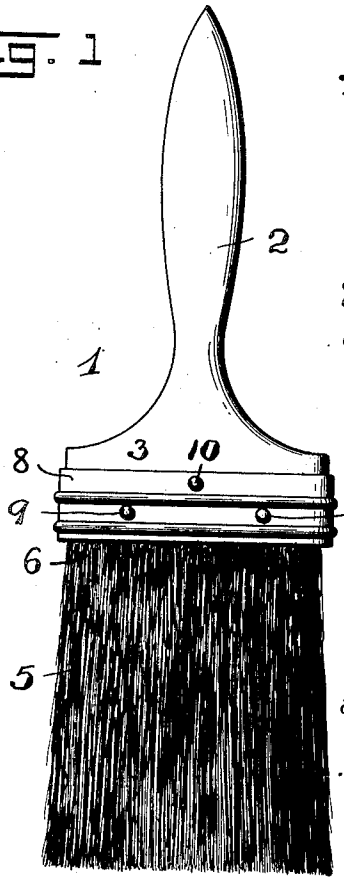
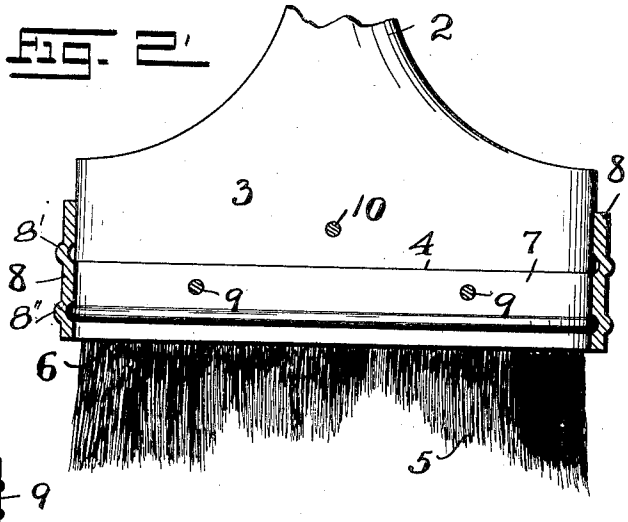


Fig. 2



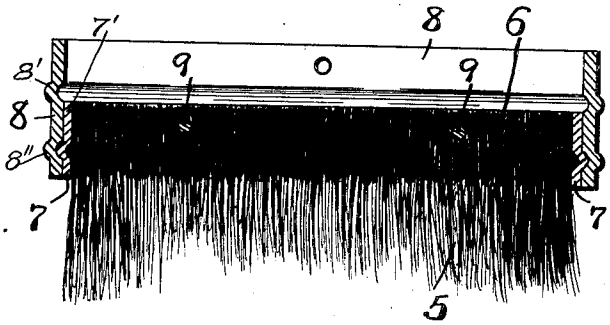


Fig. 3

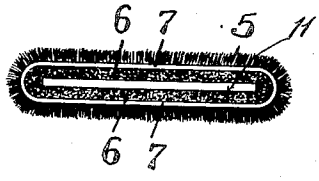


Fig. 4

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BRUSH.

No. 831,340. Specification of Letters Patent. Patented Sept. 18, 1906.

Application filed August 24, 1904. Serial No. 221,938.

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 to improvements in the manufacture of paint and other brushes; and the invention has for its primary object to provide a novel construction of brush of the character hereinafter more fully set forth.

The invention has for its further object to provide a brush comprising a bunch of bristles having a knot or upper end surrounded by a metal band, the knot and said band being tightly united during the process of vulcanizing the said knot to maintain a compressed relation of the rubber-dipped ends of the bristles which constitute the bunch and to prevent the objectionable swelling of the said soft-rubber-dipped end during the heating process, the butt of a handle and said metal-surrounded knot then finally being inclosed and held in an outer band or ferrule of metal which is concentric with the said inner metal ferrule.

A further object of this invention is to produce a brush made in this manner and providing the same with a holding means preferably in the form of two sets of holding pins or rivets, one set of pins or rivets being driven through the two concentric ferrules and the vulcanized knot of the bunch of bristles and the second set of pins or rivets being driven through the said outer ferrule and the butt of the handle.

Other objects of the present invention are neatness of the brush and simplicity and cheapness of construction, at the same time providing a durable brush construction in which the soft-rubber-dipped knot of the bunch of bristles is prevented from swelling and assuming a distorted shape during the process of vulcanizing the knot, the inner ferrule being easily fitted into an outer ferrule of the brush.

My present invention consists in the novel construction of brush hereinafter more fully set forth; and, furthermore, this invention consists in the novel arrangements and combinations of the various parts, all of which will be described in the following specification 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 my present invention. Fig. 2 is a view of the brush, showing the outer ferrule and the holding pins or rivets in vertical section, the inner metal ferrule and the butt-end of the handle being shown in elevation; and Fig. 3 is a similar view of the brush, showing both concentric bands or ferrules in vertical section with the bunch of bristles in elevation and with the handle removed. Fig. 4 is a top or plan view of the parts represented in said Fig. 3.

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

Referring now to the said figures of the 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 provided with a butt or end portion 3, having a marginal edge 4 surrounding the end surface of the butt, and arranged against the end of the said butt of the handle is a knot 6 of the bunch of bristles 5 of the brush. The said knot is surrounded upon its outer surface with a comparatively-wide ferrule or band of metal 7, having its upper marginal edge correspond ing to the marginal edge of the butt or end portion 3 of the handle 2, and being primarily secured in its position about the knot 6 during the vulcanizing process of the said knot when the soft-rubber-dipped ends of the bristles become swollen by the heat during said process. Surrounding the said inner metal band or ferrule 7 is an outer metal band or ferrule 8, substantially as shown, the said outer band or ferrule having its upper

portion extending above the upper marginal edge of the said inner ferrule 7 and slipped directly upon the butt or end portion 3 of the handle 2, with its upper marginal edge fitted over and upon the surrounding marginal edge 4 of the said butt or end portion 3 of the handle, substantially as illustrated in Figs. 1 and 2 of the drawings. It is preferable, but not of itself an absolute necessity, to more securely connect these parts by driving suitable pins or rivets 9 directly through the lower portion of the outer band or ferrule 8 and through the inner band or ferrule 7 and the vulcanized knot 6 of the bunch of bristles and driving, also, a rivet or pin 10 through the upper portion of the said outer ferrule or band 8 and the butt or end portion 3 of the handle. Thus it will be evident that while the inner metal band or ferrule 7 prevents the undue swelling of the knot of the bunch of bristles when in constant use it also serves as a reinforcing means to permit of the rivets or pins 9 between the lower portion of the outer ferrule 8 and the inner ferrule 7 and knot 6 to securely retain the parts in their connected relation. It also prevents the loosening of the butt or end portion 3 of the handle from the knot and, furthermore, all possibility of the entire withdrawal of the the handle from the ferrule of the brush is clearly overcome. If desired, the inner metal ferrule 7 may be provided with a bead 7″ or other suitable holding or retaining means into which parts of the soft-rubber cement oozé, when the metal ferrule 7 is forced over the compressed soft-rubber-dipped ends of the knot of bristles to help retain the parts in their properly-assembled relation for handling upon the steam-table before the rubber-cement becomes hard set. In like manner the outer metal band or ferrule 8 may be provided with beads 8′ and 8″; but these are ordinarily for ornamental purposes and may be omitted.

In carrying out the steps in the manufacture of brushes embodying the novel features of my present invention I first take a suitable bunch of bristles, as 5, in the knot end of which I have arranged a plug 11, preferably of wood, in the manner indicated in Fig. 4 of the drawings, and then I slip the inner metal band or ferrule 7 over the other end of the bunch of bristles, the said metal ferrule being loosely arranged about the bunch of bristles to practically retain the shape of the bunch, and the ferrule being sufficiently removed from the knot end of the bunch that the latter can be dipped in the liquid or soft-rubber cement. The knot end thus having been rubber-dipped, the inner metal band or ferrule is then forced down snugly and tightly over the said soft-rubber-dipped end, thus more securely causing said end to retain its proper and desired shape and configuration. At the same time, some of the soft-rubber cement will ooze into the holding means, as the bead 7′, with which said inner band or ferrule may be provided, thus preventing any accidental displacement of said metal ferrule from its encircling relation with the soft-rubber-dipped knot. The said soft-rubber-dipped knot, with its surrounding metal ferrule 7, is then placed end up upon a steam or heating table for vulcanizing the rubber-cement and causing the knot end of the bunch of bristles to become positively set and affixed in the vulcanized end which is surrounded by the said inner metal ferrule 7. The use of this inner metal band or ferrule 7 during the vulcanizing and heating steps is an absolute necessity, because the soft-rubber cement while being heated has a great tendency to swell, thereby producing a distorted shape of the knot, which prevents the proper insertion and arrangement of the knot in the ferrule of the handle; but, with the inner metal ferrule, the knot not merely retains its shape, but is additionally compressed owing to the swelling of the rubber being retained between the walls of the inner ferrule, and providing thereby a more positive and thorough embedding and holding relation of the ends of the bristles in the hardened and rubber-set knot. At the same time the inner and outer ferrule being made with common centers two concentric metal ferrules are provided, so that the outer ferrule is easily arranged upon and over the said inner ferrule, and the parts then suitably connected with the butt-end of the handle.

From the foregoing description of my present invention it will be seen that I have devised a simple and effectively-constructed brush which may be used with the handles and ferrules of all kinds of brushes.

I claim—

1. A brush comprising a handle having a butt, a bunch of bristles having its knot in close proximity to said butt, an inner metal ferrule entirely surrounding the outer surface of said knot and having its upper marginal edge flush with the upper surface of the knot, and an outer ferrule surrounding said inner metal ferrule and having its upper portion extending above the upper marginal edge of the inner metal ferrule and providing a receiving portion for the butt of said handle, and the upper marginal edge of the inner metal ferrule forming a shoulder upon which the butt of the handle rests, said inner and outer ferrules being provided with common centers so as to be concentric, substantially as and for the purposes set forth.

2. A brush comprising a handle having a butt, a bunch of bristles having its knot in close proximity to said butt, an inner metal ferrule entirely surrounding the outer surface of said knot and having its upper marginal edge flush with the upper surface of the knot, an outer metal ferrule surrounding said inner

metal ferrule and having its upper portion extending above the upper marginal edge of the inner metal ferrule and providing a receiving portion for the butt of said handle, and the upper marginal edge of the inner metal ferrule forming a shoulder upon which the butt of the handle rests, said inner and outer ferrules being provided with common centers so as to be concentric, means for permanently securing the lower portion of said outer ferrule to said inner ferrule, and means for permanently securing the upper portion of said outer ferrule to said butt of the handle, substantially as and for the purposes set forth.

3. A brush comprising a handle having a butt, a bunch of bristles having its knot in close proximity to said butt, an inner metal ferrule entirely surrounding the outer surface of said knot and having its upper marginal edge flush with the upper surface of the knot, an outer metal ferrule surrounding a portion of said inner metal ferrule and having its upper portion extending above the upper marginal edge of the inner metal ferrule and providing a receiving portion for the butt of the handle, and the upper marginal edge of the inner metal ferrule forming a shoulder upon which the butt of the handle rests, said inner and outer ferrules being provided with common centers so as to be concentric, means for permanently securing the lower portion of said outer ferrule to said inner ferrule, consisting of rivets extending through said outer ferrule and through the inner ferrule and the knot of the bunch of bristles, and means for permanently securing the upper portion of said outer ferrule to said butt of the 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 23d day of August, 1904.

FREDRICK GRAUL.

Witnesses:
FREDK. C. FRAENTZEL,
GEO. D. RICHARDS.