No. 717,014. Patented Dec. 30, 1902.

W. MORRISON.

BRUSH.

(Application filed Nov. 26, 1898.)

(No Model.)

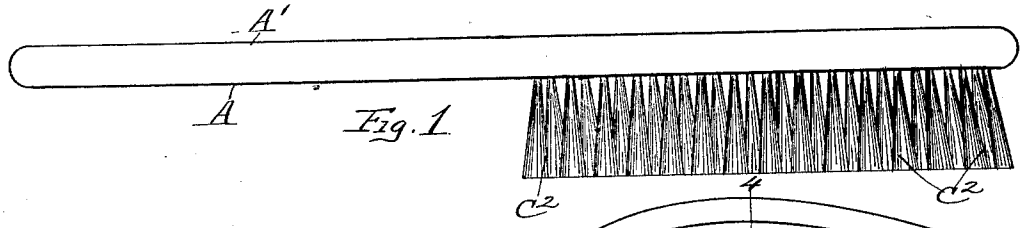


Fig. 1

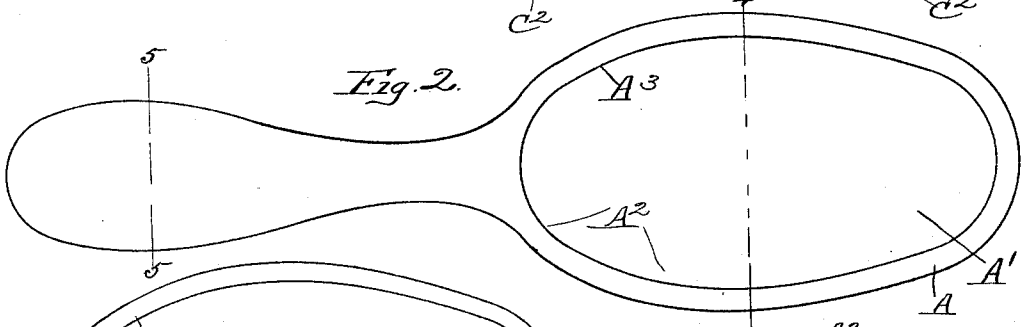


Fig. 2.

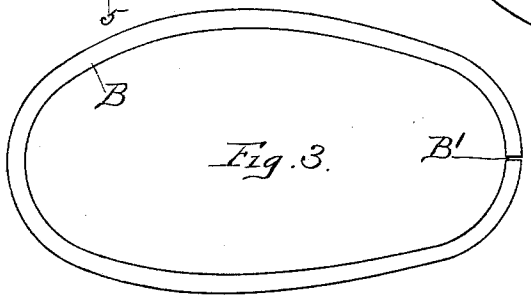


Fig. 3.

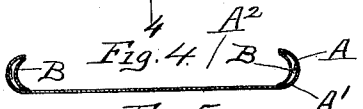


Fig. 4.

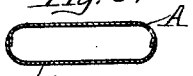


Fig. 5.

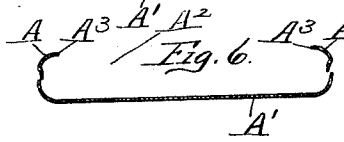
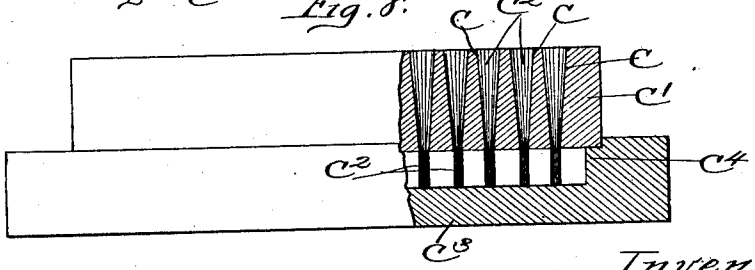


Fig. 6.

Fig. 7.

Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM MORRISON, OF LANSINGBURG, NEW YORK, ASSIGNOR TO UNIVERSAL BRUSH COMPANY, OF TROY, NEW YORK, A CORPORATION OF NEW YORK.

BRUSH.

SPECIFICATION forming part of Letters Patent No. 717,014, dated December 30, 1902.

Application filed November 26, 1898. Serial No. 697,523. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MORRISON, a citizen of the United States, residing at Lansingburg, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Making Brushes, of which the following is a specification.

Reference may be had to the accompanying drawings, and the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures.

Figure 1 of the drawings is a view in side elevation of a brush made by my improved method. Fig. 2 is a face view of the frame before the brush-head and bristles are inserted therein. Fig. 3 is a plan view of the pad-forming ring adapted to be inserted within the frame-aperture. Fig. 4 is a vertical cross-section of the head portion of the frame, taken on the broken line 4 4 in Fig. 2. Fig. 5 is a similar section of the handle portion of the frame, taken on the broken line 5 5 in Fig. 2. Fig. 6 is a similar cross-sectional view of the frame-sections detached and separated from each other. Fig. 7 is an edge view, partly in section, showing the method of forming the brush-head in the brush-frame. Fig. 8 is an edge view of the bristle-plate and its support, partly in section.

The objects of my invention are to cheapen the manufacture and improve the finish of brushes.

The principal feature of my invention consists in the method of making brushes having a chambered or recessed frame or back, consisting in making a brush-head within the frame or back by inserting tufts of bristles into heated plastic composition first deposited in the brush-frame.

I have shown in the drawings one form of construction of chambered brush back or frame adapted to the manufacture of brushes by my improved method, which construction I will proceed to describe in detail. Certain novel features of this construction will be subsequently claimed.

Referring to the drawings, A is the face-section, and A′ the back-section, of the sheet-metal frame shown without the brush-head in Fig. 2. The face-section is provided with the oval aperture A^2, adapted to contain the bristles projecting from the brush-head pad. The back-section is plain and unbroken. One section, as the face-section, is made just a little smaller than the other, so that its edge flange can be inserted a short distance within the edge flange of the other section, as shown in Figs. 4, 5, and 6. The two sections are secured together by soldering along the lapping edges. I deposit sufficient solder to cover and conceal the lapping edge and afterward scrape and smooth the soldered surface and electroplate the whole frame, thereby concealing the seam or joint formed at the junction of the lapping sections and produce a strong union, which will not permit the sections to separate or partly separate in use. The two sections are curved near their peripheral edges, as seen in Figs. 4, 5, and 6, to improve the ornamental effect of the external appearance and at the same time form inwardly-projecting lips A^3 around the brush-head aperture adapted to hold the head in place. Before depositing in the frame the heated plastic composition which forms the pad of the brush-head a forming-ring B, concavo-convex in cross-section, as seen in Figs. 4 and 7, is inserted through the brush-head aperture and secured therein by solder or any known means. The forming-ring is made to correspond in form with the brush-opening, being just a little larger in diameter and cut, as at B′, so that by lapping temporarily the cut ends the ring can be pushed through the opening, after which it is expanded to its normal diameter. By soldering the top and bottom edges of this ring to the respective frame-sections an additional fastening is provided for holding the frame-sections together.

My novel method of making brushes is as follows: In making the brush-head bristles of suitable length are first inserted in the apertures C of the bristle-plate C′, so that they form the tufts or knots C^2, projecting a short distance beyond the plate to the subjacent stop-plate C^3, having a raised portion C^4 to support the bristle-plate at the required height. The bristles may be inserted by hand or by mechanism like that shown in United States Patent No. 570,604, issued to me No-

vember 3, 1896, or in any known manner. After the bristle-plate has been supplied with bristles a covering-plate C^5 is placed over the tops of the tufts, and the lower projecting ends of the bristles are pushed through the face-aperture down into the heated plastic material D, previously deposited through the aperture in the chambered frame, as seen in Fig. 7. The lower surface of the perforated portion of the bristle-plate is a molding-surface and may be concaved, as indicated by the curved dotted line in Fig. 7, to give a convexed form to the face of the composition pad forming part of the brush-head. When desired, the covering-plate C^5 may have an operating-handle C^6. The composition quickly cools and hardens sufficiently to tightly hold the bristle tufts, after which the bristle-plate can be removed from the completed brush, this plate serving to support the projecting bristles in the desired position during the process of cooling and hardening.

My improved method of inserting the bristles obviates the necessity and delay of forming a partial bristle-supporting pad on the ends of the bristles projecting from the bristle-plate before inserting the bristles through the face-aperture, as heretofore commonly practiced, as I force the exposed and uncovered bristle ends directly into the heated composition first deposited in the chambered frame. By so doing I am able to determine exactly the proper quantity of composition to fill the chamber in the brush-head without having any excess to be forced out of such chamber when the bristles are inserted therein.

As heretofore practiced in order to insure the filling of the chamber in the brush-head it was necessary to use a slight excess of plastic composition, the surplus being forced out of the chamber when pressure was applied and frequently leaving evidences of its escape upon the frame and bristles and detracting from the ornamental and finished appearance of the brush. Should a surplus of composition be used in my improved method, it will be forced out and cleanly cut off by the sharp edges of the metal frame, if made as above described, the metallic surface of the frame permitting no adhesion of the composition thereto, as would be the case with wooden or non-metallic frames.

An important function of the forming-ring B is to close the aperture leading from the pad-chamber into the hollow handle, as shown in Fig. 7, when the frame is made as above described.

The metal frame may be electroplated, japanned, enameled, or otherwise coated in any known manner to give the same a finished and ornamental appearance.

In making brushes by my improved method above described the brush back or frame may be made of any desired material and in any known manner.

What I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described method of making brushes which consists in depositing a mass of heated plastic composition within a chambered brush-frame having a contracted aperture, forcing one end of a group of exposed bristle tufts through the aperture and into the composition, and at the same time giving form to the face of the composition by mold-pressure, and supporting the bristles in the desired position projecting from the composition out through the face-aperture until the composition cools and hardens.

2. A brush comprising a sectional frame with a brush-head opening in the face-section, a forming-ring around the opening and inclosed by the face and back sections, a brush-head consisting of bristles and a bristle-supporting pad inclosed by the ring and larger than the brush-head opening in the face-section through which opening the bristles project, substantially as described.

In testimony whereof I have hereunto set my hand this 22d day of November, 1898.

WILLIAM MORRISON.

Witnesses:
FRANK C. CURTIS,
M. L. GUNAY.