(No Model.)

W. H. MILES, Jr.

BRUSH BACK.

No. 251,059. Patented Dec. 20, 1881.

Fig 1.

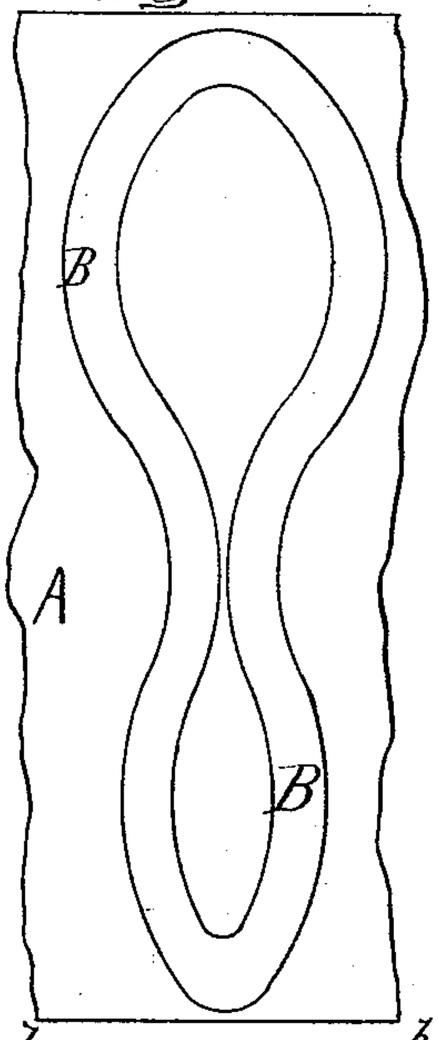


Fig 2.

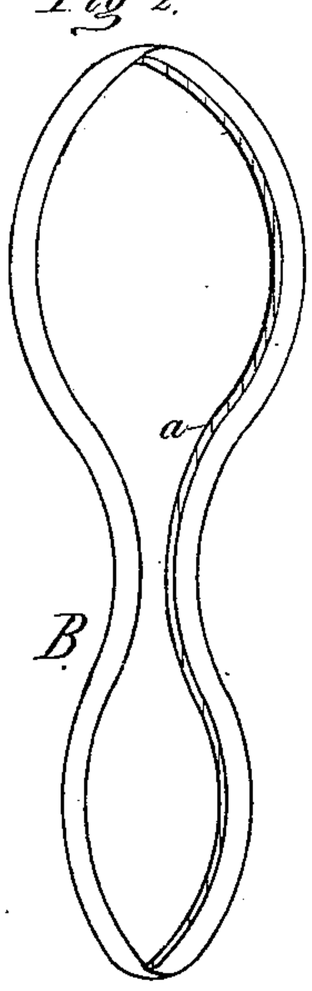


Fig 3.

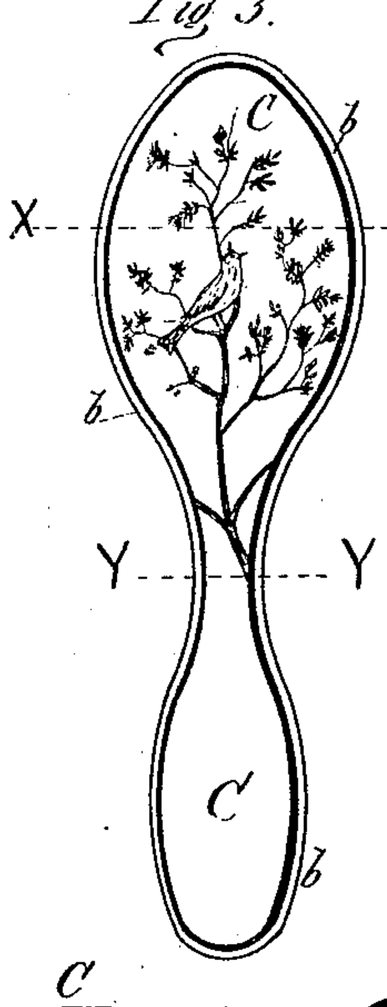


Fig 4.

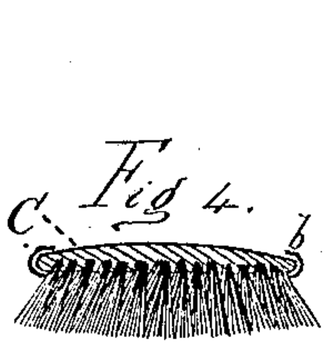
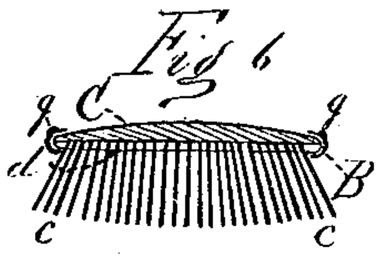


Fig 5

Fig 6



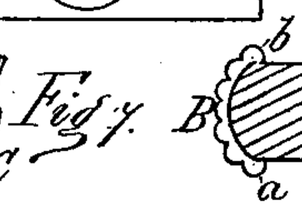


Fig 7.

Fig 8.

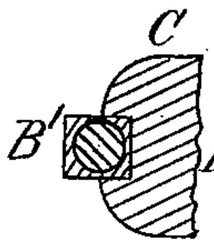


Fig 9.

Fig 10.

Fig 11.

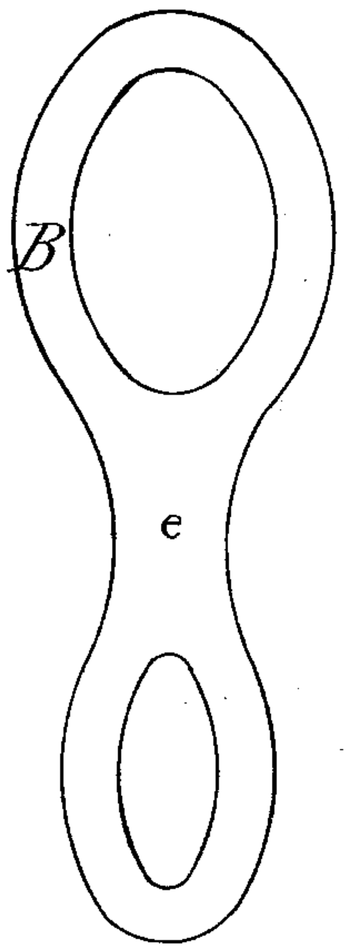


Fig 12.

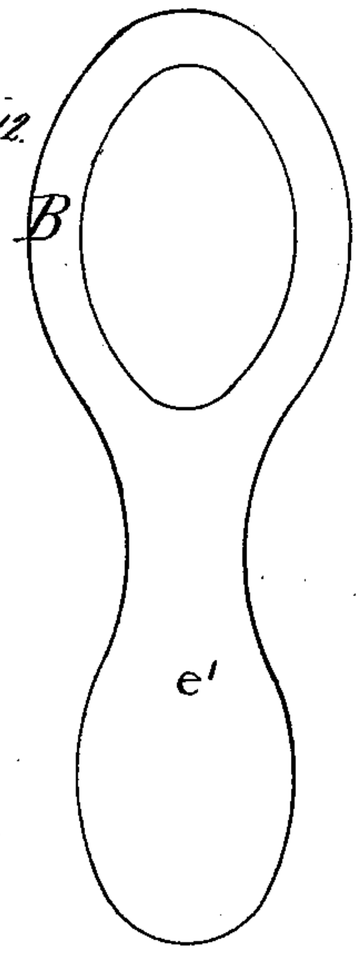
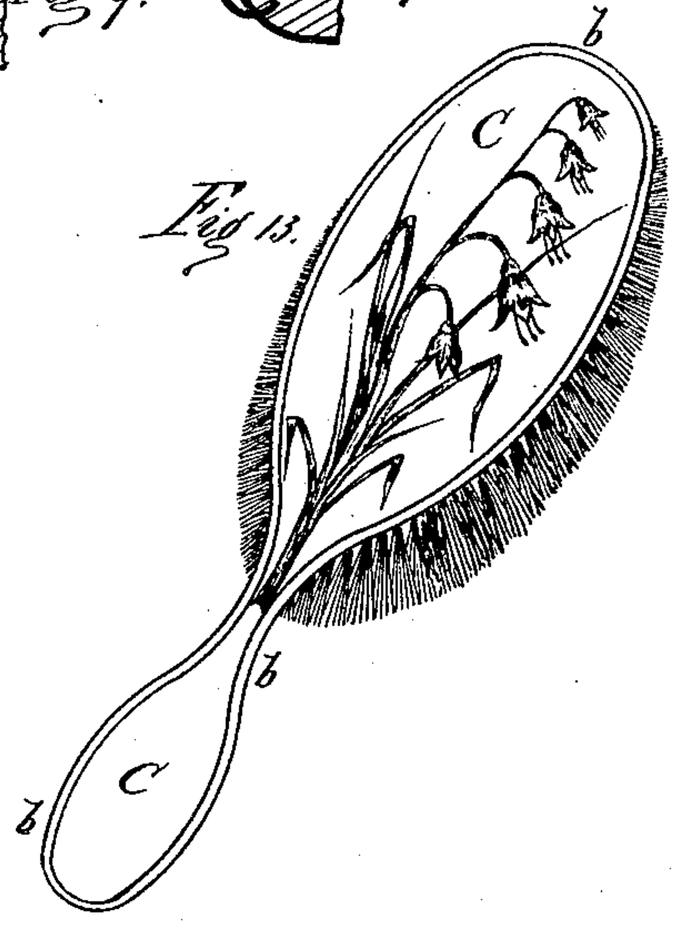


Fig 13.



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UNITED STATES PATENT OFFICE.

WILLIAM H. MILES, JR., OF BROOKLYN, NEW YORK.

BRUSH-BACK.

SPECIFICATION forming part of Letters Patent No. 251,059, dated December 20, 1881.

Application filed May 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, W. H. MILES, Jr., of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Brush-Backs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has special relation to the manufacture of brushes wherein the back and handle are made of a more or less brittle composition; but, as will be readily understood from the following description, the improvements may be applied to any of the ordinary forms of brushes.

The objects of my invention are, chiefly, to simplify, improve, and cheapen the manufacture of brushes, to render it convenient and expedient to employ a grade of composition cheaper than usual for the backs and handles thereof, to strengthen or stiffen the handles at their junction with the backs, to render it expedient to make the neck narrower than usual, and therefore more graceful in outline, and to dispense with the expensive methods of molding and consequent finishing now in vogue. To accomplish all of this the invention involves certain novel and useful arrangements or combinations of parts, peculiarities of construction, and details of manipulation or manufacture, as will be herein first fully described, and then pointed out in the claims.

Heretofore in the manufacture of composition-back brushes which are of rubber, glue compounds, papier-maché, and various compositions, it has been customary to resort to the use of wires or strengthening-pieces embedded and concealed within the material during the process of molding. With this style of strengthening, the neck and other parts of the brush-back are necessarily made quite thick, the edges all round are left exposed to wear and damage, and being brittle they are liable to chip off, and after coming from the molds the backs are required to be trimmed, finished, or ground down and polished, especially around the edges, which are left rough in the region where the two parts of the mold come together. This increases the cost of manufacture, and necessitates the employment of a fine or expensive grade of composition, which alone will withstand the damaging effects of wear, as well as requiring that the composition be employed in a plastic state, so that the wires or strengthening-pieces may be inserted.

In the accompanying drawings I have chosen the several figures shown as being best calculated to illustrate my invention.

Figure 1 is a plan view of a fragment of a thin sheet of metal from which I cut, stamp, or otherwise produce a blank for my improved stiffening-rim, as outlined thereon. Fig. 2 is a perspective view of the blank having the exterior bent up all around and ready to receive a brush-back previously formed to fit it. Fig. 3 is a plan view, showing the outer edge of the stiffener bent over upon the back. Figs. 4 and 5 are cross-sections upon lines *x x* and *y y* of Fig. 3. Fig. 6 is a cross-section of a brush, showing a means of applying elastic brush-bases to the brush-backs. Figs. 7, 8, 9, and 10 are sections of fragments, showing different forms, outlines, or ornamentations, which may be adopted in connection with the stiffener. Figs. 11 and 12 are plan views of blanks struck out in forms differing somewhat from that shown in Fig. 1, but affording an increased stiffness (when made up) in the region of the neck of the brush; and Fig. 13 is a perspective view of a brush completed in accordance with my invention.

In these several figures like letters of reference, wherever they occur, indicate corresponding parts.

A is a strip of thin sheet metal—as brass, copper, zinc, &c.—capable of being "drawn." From this I cut, preferably by use of suitable dies, a continuous blank, B, having an opening corresponding nearly to the shape of the brush-back, but somewhat smaller, the outer edge of the blank being at such distance from the inner edge as will afford the requisite room for "forming up" and embracing the brush-back, substantially as indicated in Fig. 1.

The blanking out is of course intended to be accomplished with as little waste of material as possible, and in the form of blank indicated in Fig. 1 it will be convenient to produce those for the very large sizes of brushes from the metal surrounding the part cut out, the exterior cut in Fig. 1 being employed for the interior of the larger-sized blank. The blank so formed is continuous, and the outer portion is

bent or drawn up all around, leaving a narrow inwardly-projecting flange, as at *a*, Fig. 2, by use of tools and means well understood by persons familiar with the art of drawing metals. This drawing should be accomplished in such manner as to obviate all buckling or crimping, so as to give a fair exterior, and for this reason the curves are made substantially tangent to each other and all sharp angles avoided. The brush-back having been previously formed or molded, it may be dropped into the metallic rim drawn up as in Fig. 2, and the upper edge of the metal then turned down upon it, as shown at *b*, Figs. 3, 4, and 5, so as to pinch all around, forming a protection for the edges and stiffening the neck at the union of the handle and brush-back. To finish the brush in this manner it is plain that the edges of the brush-back have only to be roughed out, the metal being made to hide all the defects therein.

The metal may of course be plated or polished in any way, and may be milled, beaded, or otherwise ornamented, as desired. If thin metal be employed, of unusually light weight, an ornamental bead—as, for instance, such as indicated at *g*, Fig. 6—will add materially to its stiffness, and, consequently, to the durability of the finished brush. A cheaper grade of composition may be employed in brushes having this strengthening-rim, for the reason that the material is protected from chipping at the edges and from breaking at the neck.

A preferable manner of attaching the protecting and stiffening rim or band is to form it up completely, top and bottom, and locate it in the mold so that the material shall be pressed into the interior recess all around, and when thus made the brush-back comes from the mold finished and ready for the application of the brush material.

One advantage of the exterior rim in connection with the composition brush-backs is that by its use the backs may be stamped up from sheets of the material, the edges not requiring to be finished, whereas by the old methods of stiffening and strengthening the mold must be employed in order that the wires may be embedded or inserted, and the molding is a more expensive process than stamping.

In the use of elastic materials for the backs they may be sprung into place within the stiffener, and all the advantages of the invention preserved in connection with them.

The improvements also render it convenient, simple, and easy to secure the wire brushes to their backs. These brushes, as is well known, have a flexible or elastic base, which permits the wires to yield readily to the touch. The back having the binding or rim already applied and located, the flexible base may be easily sprung in under the edge of the binder and there securely held; or the binder may be bent down upon the combined back and brush-base, the same as for the solid back shown in Figs. 3, 4, and 5. In Fig. 6 I have shown a section wherein *c* represents the wires, *d* the elastic base of the wire brush, and C the composition back.

The stiffener B may be formed around the back, and base *d* sprung in under the edges; or, if desired, the two parts may be pinched together by the application of the rim to their united edges.

If increased stiffness be required at the neck of the brush, the rim may be blanked out as in Fig. 11, leaving a cross-piece, *e*, which covers the neck on one side when formed around the brush-back; or, if blanked out as in Fig. 12, the neck and handle will be protected on one side by the piece *e'*, the opposite side presenting an appearance, when the back is finished, substantially as shown in Fig. 3. The rim as thus made and applied may be adopted in connection with ordinary brushes of wood, as well as with those of any composition, avoiding the hitherto necessary finishing of the edges, and making it convenient and easy to apply layers of paper, cloth, &c., for ornamentation, holding the parts securely together by the metal rim, and avoiding the necessity of using glue, as now practiced. The back is left exposed, except at the location of the narrow rim.

By the method of finishing the brushes as above pointed out it will be observed that no solder or brazing is required, as is done in some classes of brushes wherein a continuous metallic backing and handle are employed; and the method enables me, if desired, to mold the back and handle into or upon the rim with the cavities ready for the reception of the bristles or brush material, so that when the back comes from the mold it is finished and ready to receive the brush; or the bristles may be molded in the back, if desired, at the same time.

The exterior of the rim may be convex, as indicated in Fig. 4, concaved, as in Fig. 7, or ornamented, as in Fig. 8.

In Fig. 9 I have indicated the application of a stiffener in the form of a square or round wire, B', embedded in the edge of the brush-back, which latter is molded in and on the stiffener much as above explained in connection with the rim which overlaps the top and bottom of the edge of the brush-back. This form may be stamped or otherwise formed from thicker metal, and since it projects a little from the back it will prevent damage thereto, while it still adds strength, especially in the region of the brush-neck.

The rim B, as shown in Fig. 10, does not extend above and below the edges of the back, but is embedded therein at top and bottom, affording by use of the thin metal all the advantages of the forms shown in Fig. 9. Either of these forms may be placed in the molds and the composition applied thereto substantially as above explained, and either will, when properly made and applied, afford the desired strength, stiffness, durability, cheapness, and finish.

I am aware that metallic backs and handles have heretofore been employed in brushes, and do not desire to be understood as making claim to any such construction; but,

Having now fully described my invention, what I do claim as new, and desire to secure by Letters Patent, is—

1. In combination with the brush-back, the herein-described continuous rim of metal, said rim being applied to the lateral edges of the handle, neck, and remainder of the back overlapping these edges at top and bottom and protecting them from damage and leaving the top of the brush exposed, substantially as herein set forth.

2. The stiffening and protecting metallic rim enveloping the lateral edges of the brush-back and leaving the back exposed, said rim provided with the cross-piece extending over the neck on one side, substantially as and for the purposes set forth.

3. In combination with a brush-back made of composition, molded as explained, an exterior metallic rim located upon the said composition back and protecting the edges thereof, leaving the other portions of said back exposed, the composition being molded in the rim after the latter is formed, substantially as and for the purposes herein set forth.

4. As a new article of manufacture, the herein-described brush, having its handle, neck, and back bound at the edges all around by a narrow continuous metallic binding formed upon the exterior, affording stiffness at the neck and protection against damage and wear at the edges, the back and face of the brush being exposed, substantially as herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

WM. H. MILES, JR.

Witnesses:
WORTH OSGOOD,
F. W. HANAFORD.