(No Model.)

P. J. KANE.

MANUFACTURE OF BRUSHES.

No. 347,048. Patented Aug. 10, 1886.

Fig. 1.

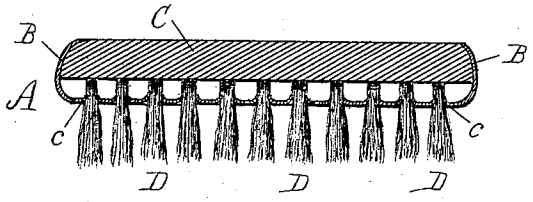


Fig. 2.

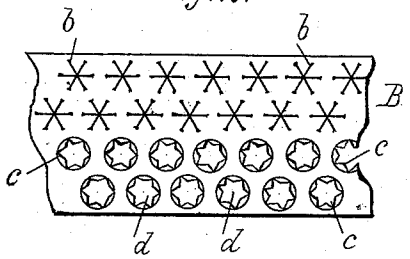
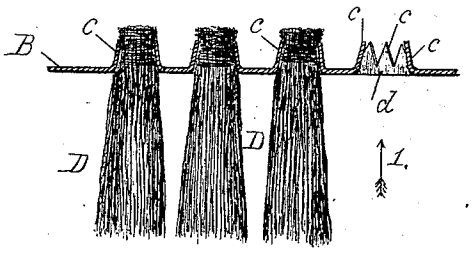


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

PATRICK JOSEPH KANE, OF BOSTON, MASSACHUSETTS.

MANUFACTURE OF BRUSHES.

SPECIFICATION forming part of Letters Patent No. 347,048, dated August 10, 1886.

Application filed November 20, 1885. Serial No. 183,393. (No model.)

To all whom it may concern:

Be it known that I, PATRICK JOSEPH KANE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in the Manufacture of 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 letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to the manufacture of brushes; and it consists in the particular manner of securing to the body or head thereof the "knots," so called, of bristles, which, when arranged collectively, form the brush as an entirety. Hitherto the knots have been secured in the head or stock of the brush in various ways by wire, mastic, cement, glue, or other adhesive compounds.

In my invention I propose to dispense with all forms of adhesive compounds analogous to glue or cement as a medium of securing the knots of bristles, and in lieu thereof employ a metallic plate perforated with holes, the peripheries of which are provided with a series of pointed clips disposed at right angles, or thereabout, with the surface of said plate. Through these perforations the knots of bristles are to be thrust when the clips, angularly disposed with respect to the exterior surface of the individual knots, grasp and hold them securely in place.

The advantages obtained in a brush wherein the knots of bristles are thus secured will be more fully and clearly hereinafter described.

The drawings represent, in Figure 1, a vertical transverse section of a brush embodying my invention, while Fig. 2 shows a portion of the metallic plate with the fastening-clips in process and completely formed. Fig. 3 shows some of the knots as engaged by the clips of the plate prior to its attachment to the brush-head.

In the above drawings, A represents a brush as an entirety, in which the knots of bristles are shown at D D. These knots are formed in the usual manner now generally adopted in the manufacture of brushes, the size of the knot and the length of the bristles depending upon the description of brush into which they are to be inserted.

At B, I have shown a portion of a metallic plate constructed in general shape to conform to the stock of the brush of which it is to form a part—that is, it may be rectangular, circular, or oval in shape. In this plate are punched or cut a series of radially-disposed slits, *b b*, by which a number of pointed clips or teeth, *c c*, are formed. When these clips *c c* have been struck out, they are forced to diverge from the surface of the plate to which they are attached until they stand at right angles, or thereabout. However, I prefer to have them converge slightly toward a common center, (see Fig 3 of the drawings,) that they may engage the knots with more certainty. It will thus be seen that the center of each separate series of radially-disposed slits *b b* corresponds to the center of a knot of bristles, D, and thus the latter may be disposed in any way it seems best, according to the arrangement of said slits. Furthermore, by the bending of these clips *c c* a round, smooth, metallic tube, *d*, is presented for the insertion of a knot of bristles and there is no tendency to cut or injure the bristles when the brush is actively employed. Since each individual series of clips *c c* converge slightly toward a common center, it is evident that if a knot of bristles, D, is thrust up within the tapering space formed by them it will readily spread them apart as it enters; but, after such introduction, it cannot then be withdrawn, since all the points of the clips simultaneously enter and grasp the knot of bristles which is held the more firmly the stronger the pull downward. Now, in the construction of my brush the smooth face of the metallic plate is laid outward, with the pointed clips projecting inwardly. The workman now takes the knots of bristles D D, previously prepared, and thrusts them up in the direction of arrow 1, one in each of the holes *d d*, when the knot is drawn forcibly downward in the opposite direction after being thrust up sufficiently far for the butt-end of the knot to properly engage with the clips. Thus this downward pull suffices to set each knot, and when all the holes or perforations in the plate B are filled the bristle portion of the

brush is completed. The wooden stock or head portion shown at C may then be inserted and allowed to rest upon the butt-ends of the knots, to prevent movement of the latter upward. The metal plate is to be then drawn about and secured to the stock C in any suitable way, the handle, if desired, attached thereto, when the brush as an entirety is finished. Moreover, no amount of moisture nor will hot water affect this mode of securing the bristles, while at the same time the brush can be made more quickly and more cheaply, and I believe it will last longer and be more serviceable in every way.

I claim—

The combination of the continuous perforated plate B, having teeth round its perforations or openings, with the solid back C and the brush-tufts forced up through the openings, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

PATRICK JOSEPH KANE.

Witnesses:
H. E. LODGE,
R. W. LODGE.