

No. 826,119.

PATENTED JULY 17, 1906.

H. M. SCHWARTZ.
PROCESS OF MAKING BRUSHES.

APPLICATION FILED NOV. 16, 1899.

2 SHEETS—SHEET 1.

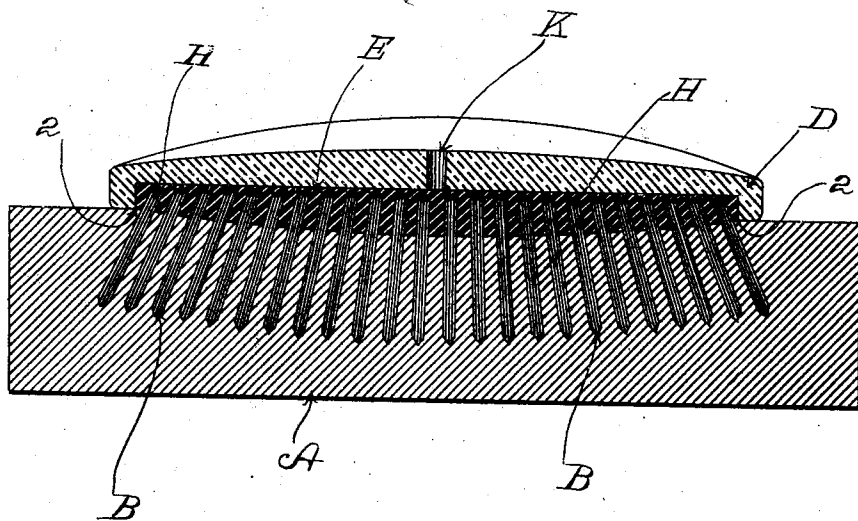


Fig. 1

Witnesses:

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Edith J. Anderson.

Inventor:

Herman M. Schwartz
by MacLeod Calver & Raudall
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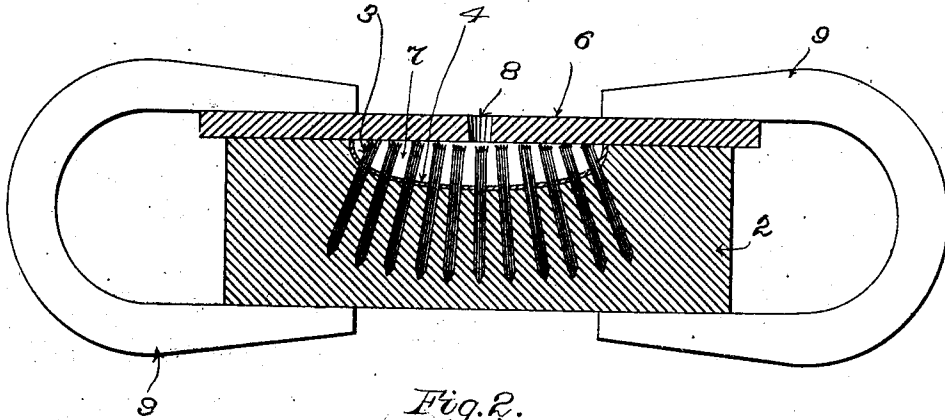


Fig. 2.

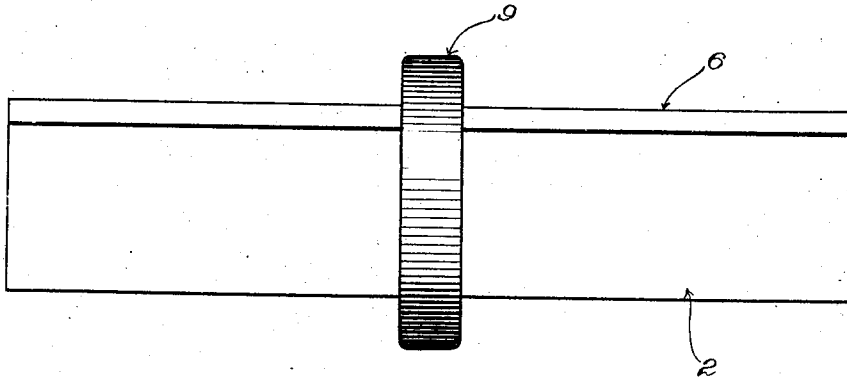


Fig. 3.

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UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING BRUSHES.

No. 826,119.

Specification of Letters Patent.

Patented July 17, 1906.

Application filed November 16, 1899. Serial No. 737,149.

To all whom it may concern:

Be it known that I, HERMAN M. SCHWARTZ, a citizen of the United States, residing at Northampton, in the county of Hampshire, State of Massachusetts, have invented a certain new and useful Improvement in Processes of Making Brushes, of which the following is a specification, reference being had therein to the accompanying drawings.

Heretofore brushes have been made comprising in their construction a back of wood or other suitable material and a bristle-block of molded composition having the inner ends of the tufts of the bristles embedded therein. Usually in practice heretofore in the manufacture of brushes of the class just referred to the bristle-block has been molded to shape in a proper block or die having a cavity corresponding in shape to that of the bristle-block which is to be produced and having a number of bristle-receiving holes corresponding in size, number, and arrangement with the tufts of bristles which the completed brush is to have. After having been removed from the said block or die the bristle-block has then been inserted and secured in the cavity or recess which has been formed in the brush-back to receive it.

By the employment of my novel process I am enabled to do away with that part of the die which has heretofore been employed to form a portion of the brush-block which is inserted in and engages the corresponding cavity in the brush-back, since the brush-block is formed directly in the cavity of the brush-back, the said cavity constituting the die or mold for the brush-block. I am further enabled to save considerable manipulation in the formation of the brush-block and also to avoid all the steps incident to fitting the brush-block to and securing it in the brush-back, since I find that the brush-block adheres to the brush-back and does not require to be secured thereto by other means.

My invention will be readily understood from the following description, in which reference is made to the accompanying drawings, and the novel features thereof are pointed out and clearly defined in the claim at the close of this specification.

Referring to the drawings, Figure 1 shows in vertical section a brush and a die used in producing the same in accordance with one

mode of carrying my invention into effect.

Fig. 2 is a sectional elevation of a bristle-block die with the bristles therein, showing the two parts of the die clamped together ready to receive the plastic composition and illustrates another mode of carrying my invention into effect. Fig. 3 is an end elevation of the parts which are shown in Fig. 2.

Having reference first to Fig. 2 of the drawings, 2 is a die, preferably of metal, having a cavity or recess 7 corresponding with the shape to be given to the bristle-block which is to be produced and also having a series of holes therein, as shown, to receive the tufts of bristles 3, the said holes corresponding in number and relative location with the number and relative location of the tufts of bristles in the completed brush.

The bristle-block may be formed from composition alone, as is the bristle-block in the brush shown in Fig. 1, or it may have a face of metal. In Fig. 2 the die 2 is shown as having in the recess or cavity 7 thereof a shell or facing-plate 4, of metal, which is designed to form the face of the bristle-block. This shell has previously been formed to the required shape by dies or the like to fit the cavity in the die 2, as shown, and the said shell is provided with holes which are located to register with the holes in the die 2, so that after the shell or facing-plate has been placed in the cavity of the block or die the bristles may be caused to extend through the holes of the facing plate or shell into the holes in the block or die. The other portion of the die is shown at 6 and consists of a flat plate which serves to cover and inclose the cavity or recess 7 in the die 2. Provision is made for the admission of composition into the cavity or recess thus covered and inclosed. In Fig. 2 a hole 8 is made through the plate 6 for the said purpose, the said hole forming a contracted opening into the cavity in which the bristle-block is to be formed. The plate 6 is applied to the die 2, as shown, and is secured thereto by means of any suitable clamping means. I have shown for this purpose two U-shaped clamps 9, one of which is applied at each side or end of the die 2 and plate 6. The composition from which the bristle-block is formed is then forced under a proper degree of pressure into the cavity 7, through the hole 8, in a very plastic or semifluid con-

dition and caused to fill the cavity, flowing around and embedding the portions of the tufts of bristles which project into the said cavity and completely filling the shell 4. In-
 5 as much as the die 2 and plate 6 are not heated, the composition sets and hardens readily, and the plate 6 may then be removed and the bristle-block and bristles taken out of the die 2. The bristle-block is then ready,
 10 without any subsequent finishing operation, to be secured to the brush-back.

Having reference to Fig. 1 of the drawings, the die in which the tufts of bristles are placed is shown at A and corresponds substantially with the bristle-block die 2, hereinabove described. After the bristle-receiving holes in the die A have been filled with bristles in the well-known manner the back D of the brush is applied to the said die, as
 20 shown, Fig. 1. The said back D may be of wood or equivalent material and is provided with a recess or cavity H in its face. In Fig. 1 the inlet for the plastic composition is constituted by a small hole or opening K, leading from the exterior of the brush to the recess or cavity H therein. The edges L of the back should for the best results be made to fit snugly against the face of the die in order
 30 thereby to form a dam and prevent the plastic composition from flowing in between the edges and the die, and thus impairing the finish of the brush or rendering a finishing operation necessary. The brush-back D and die A are clamped together by suitable
 35 clamps. (Not shown.) The plastic composition which is to form the bristle-block E is then caused to flow under suitable pressure in a highly plastic condition into the cavity H through the opening K. The composition
 40 fills the cavity, flowing around and embedding the ends of the tufts of bristles and

adhering firmly to the bottom and sides of the recess in the brush-back. I find in practice that the bristle-block when thus formed in the recess of the brush-back will adhere
 45 firmly to the back and remain securely in place without it being necessary to undercut the sides of the recess in the back or otherwise to form the said recess especially to hold the bristle-block in position. When
 50 the composition has set and hardened, the brush may be removed from the die. The hole or opening K is shown as located centrally of the brush-back and extending directly through the same; but the precise
 55 location of the hole or opening is not material so long as it affords an inlet through which the highly plastic composition from which the block E is formed may be caused to flow into and fill the cavity H when the back is in
 60 contact with the die, as shown. The hole K may be filled and finished in any desired manner.

By the process above described I avoid many steps which are necessary when the
 65 bristle-block is formed independently and afterward secured to the back.

What I claim is—

The process herein described of making a brush, which consists in first assembling the
 70 bristles in a bristle-block die, then applying a recessed brush-back to the latter, and then forcing composition in a highly plastic state into the cavity between the brush-back and the die to fill the said cavity, substantially as
 75 described.

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

HERMAN M. SCHWARTZ.

Witnesses:

WM. A. MACLEOD,
 CHAS. F. RANDALL.