

G. D. PUSHEE.
METHOD OF MAKING BRUSHES.
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935,326.

Patented Sept. 28, 1909.

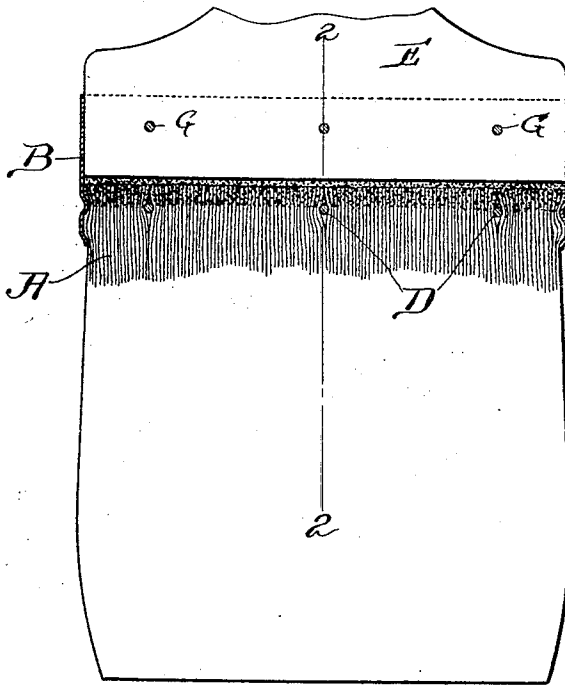


Fig. 1.

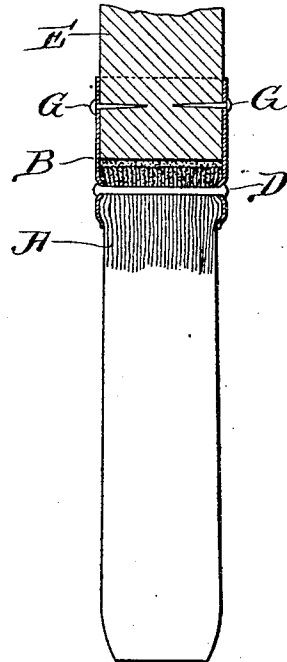


Fig. 2.

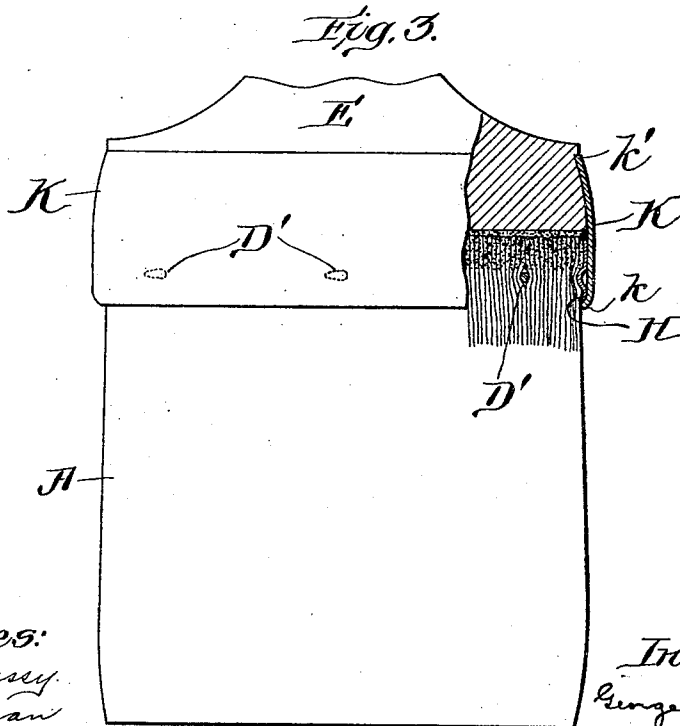


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE D. PUSHEE, OF WESTON, MASSACHUSETTS.

METHOD OF MAKING BRUSHES.

935,326.

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To all whom it may concern:

Be it known that I, GEORGE D. PUSHEE, of Weston, in the county of Middlesex and State of Massachusetts, have invented a new and useful Method of Making Brushes, of which the following is a specification.

The object of my invention is to provide an improved method of making brushes which will improve the quality of the brushes and insure the retention of the bristles in place, and to avoid the cutting off of the bristles which is now done when holes are drilled through the bristles after vulcanization.

My invention consists mainly in making a brush by assembling the bristles in the ferrule, then passing cross-bars through the ferrule and between the bristles before vulcanization, then vulcanizing the bristles in the ferrule, and then connecting the ferrule with the handle.

Other features of my invention will be pointed out below.

In the drawings Figure 1 is a partial sectional elevation of a brush embodying my invention; Fig. 2 is a section on line 2—2 of Fig. 1; and Fig. 3 is a partial section of a modification.

In making brushes according to my method in its preferred form, I first assemble sufficient bristles A to compactly fill ferrule B. The bristles are then drawn down so that their root ends are at about the middle of the ferrule. I then pour into the ferrule on top of the roots of the bristles a suitable quantity of liquid rubber compound adapted to the purpose of vulcanizing, and then preferably force the compound between and among the roots of the bristles by means of compressed air, and then preferably I allow this compound to air harden, or partly harden. The cross-bars D D, which are shown as nails to hold the bristles to the ferrule, are then passed from one side of the ferrule between the roots of the bristles to the other side of the ferrule where they are clenched. The nails crowd the bristles sidewise against each other and against the ferrule. The bristles thus held in the ferrule are then brought into proper relation to a steam or other heated table and vulcanized to the cross-bars and ferrule, and when the vulcanizing is completed the ferrule is nailed to handle E by nails G G. I may also employ my

method to make brushes differing in detail from the one above described, but which have the same essential characteristic of novelty. For example, I may use the ferrule H which does not extend above the roots of the bristles and having applied the nails D' D', and thereafter having vulcanized the bristles in the ferrule, I may attach said ferrule H to the handle by means of another ferrule K whose lip *k* engages ferrule H and whose edge *k'* is crimped to engage the handle. I refer to the above modified form of brush to show that the essence of my invention consists not in details but in applying the nails or other cross-bars to the properly prepared roots of the bristles before the vulcanizing is done.

The main advantage of my invention, and in fact its characteristic feature, is that it provides for the most efficient holding of the bristles to the ferrule. This is due to my applying the nails or cross-bars at such a time in the process of making the brush that no harmful effect is had on the bristles themselves as the cross-bars are placed between them before vulcanization, and therefore all the bristles are of full length and all the roots have their full length in vulcanized relation to the ferrule. Another advantage is the additional holding effect I obtain by crowding the roots of the bristles sidewise and above the cross-bars before the roots have become set by vulcanization.

The brush produced by my method has the important practical advantage of having its cross bars inserted before vulcanization, thus insuring the retention of the bristles in the ferrule. This retention is due to several causes, the most important of which is that all the roots are of the same length by reason of no holes having been bored after vulcanization which boring would weaken the structure. My brush does not have some short and some long roots, as is the case with brushes having holes drilled through the bristles after vulcanization, but all are of substantially the same length and extend into the ferrule beyond the cross-bars. The result is that all the bristles have the desired length of root in coöperative relation with the cross-bars and with the other roots. Another cause of such retention is that the cross-bars clamp the roots against the ferrule and also have an additional holding function because they are directly beneath

the tops of certain of the roots which must therefore curve around the cross-bars as indicated.

Although I have illustrated a paint brush, it is manifest that my invention is applicable to other brushes.

I do not claim the article above described as such in this application as I intend to make it the subject of another application.

10 What I claim is:

The method of making brushes consisting

in placing the roots of bristles within a ferrule; then passing cross-bars through the ferrule and between the roots of the bristles; then vulcanizing the roots to the cross-bars and ferrule; and then attaching the ferrule to the handle. 15

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