

No. 718,999.

PATENTED JAN. 27, 1903.

C. E. GRAHAM.

BRUSH.

APPLICATION FILED MAY 12, 1902.

NO MODEL.

Fig. 3.

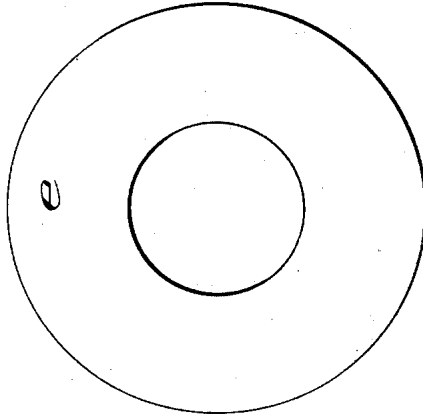


Fig. 2.

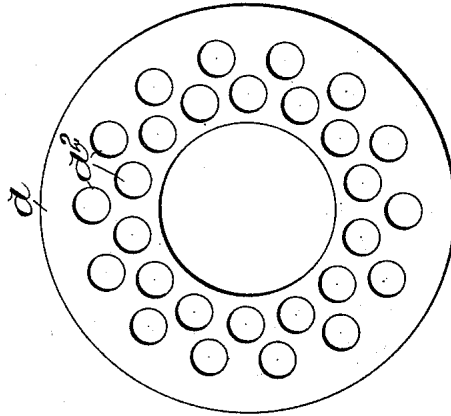
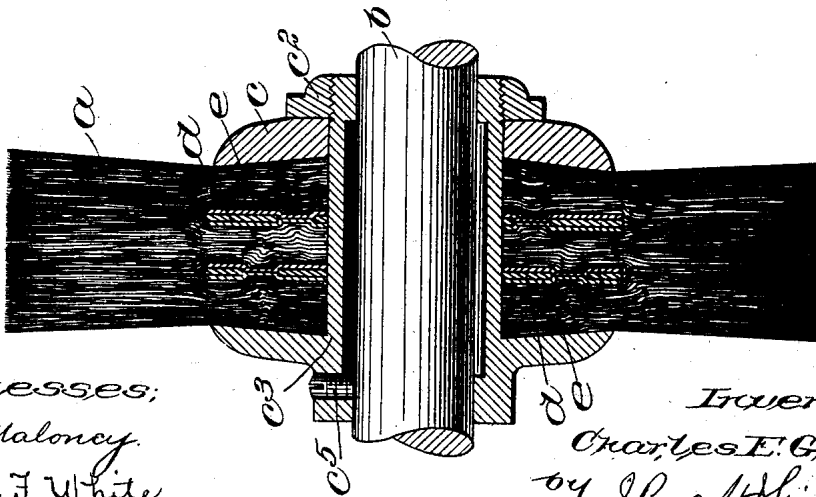


Fig. 1.



Witnesses;
Jas. J. Maloney.
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Inventor,
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by J. P. [Signature] Attorney

UNITED STATES PATENT OFFICE.

CHARLES E. GRAHAM, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, AND BOSTON, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

BRUSH.

SPECIFICATION forming part of Letters Patent No. 718,999, dated January 27, 1903.

Application filed May 12, 1902. Serial No. 106,952. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. GRAHAM, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Brushes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to a brush and is embodied in a brush having novel means for holding the brush material clamped to the frame or body portion, the invention being mainly adapted for use with a rotary brush in which the body portion is in the form of a hub with the brush material projecting radially therefrom.

In accordance with the invention the brush material is secured to the hub or frame by means of flanges, between which the brush material is clamped, and in order to prevent the material from pulling out the brush is provided with holding devices between the clamps, which holding devices consist of perforated washers of suitable material, such as leather-board or fiber, the strands of the brush material being forced laterally into the perforations under the pressure of the clamping devices. By this construction the use of glue, cement, or analogous substances is obviated, while the brush material is nevertheless firmly held throughout with no tendency to pull out at the middle.

The number of holding devices or washers may vary in accordance with the thickness of the brush, two of such washers having been found to be sufficient to prevent the material from pulling out in an ordinary rotary brush between one and two inches thick. Each washer is preferably provided with two rows of perforations offset with relation to each other, so that every strand of the brush material adjacent to the washer will be forced into one of the perforations, and in order to protect the brush material and also to assist in frictionally gripping the same washers of drilling or other suitable material may be employed in addition to the fiber washers and interposed between the said washers and the strands of material.

Figure 1 is a longitudinal section of a brush embodying the invention; Fig. 2, a plan view of one of the fiber washers, and Fig. 3 a plan view of one of the drilling washers.

Referring to Fig. 1, the brush material *a*, which is in the form of separate strands, such as bristles, is secured to the body of the brush by means of a cup-shaped clamping member *c*, which is adapted to be forced against the bristles by means of a nut *c*², the body portion *c*³ being provided with a flange corresponding to the clamping member *c* to support the bristles at the opposite side.

As herein shown, the invention is embodied in a rotary brush, and the frame *c*³ is shown as in the form of a hub adapted to be mounted on a suitable shaft *b* and secured thereon, as by a set-screw *c*⁵.

In order to prevent the bristles from pulling out in the middle, where the clamping pressure does not act so directly on the strands, the brush is provided in accordance with the present invention with perforated washers *d* of any suitable material—such, for example, as leather-board or fiber—each washer having a number of perforations *d*², which may be arranged in rows and offset with relation to each other, as shown in Fig. 2, so that there will be a perforation or portion thereof opposed to every strand in the bunch of brush material without, however, materially weakening the washer. By this construction the clamping pressure which is brought to bear by the nut *c*² will force the bristles toward each other through the perforations *d*², so that the said bristles will be caught or clamped in the interior of the brush, as shown in Fig. 1, thus preventing the middle bristles from pulling out.

In addition to the perforated washers *d* the brush is preferably provided with additional washers *e*, of some flexible and rough material, such as ordinary cotton-drilling, there being one of such washers on each side of each fiber washer *d*, as indicated in Fig. 1, and the said washers *e* are forced into the perforations *d*² by the brush material, so that they cannot slip with relation to the washers *d*, and serve to firmly hold the brush mate-

rial, which might otherwise slip if in direct contact with the leather-board washers, the surface of which is comparatively smooth.

There may of course be any number of 5 sets of washers employed; but in an ordinary brush two or three of such sets are all that are necessary to hold the brush material firmly, there being two of such sets indicated in the drawings, which show about the de- 10 sirable proportions.

In order to obtain a better grip and to distribute the clamping means more effectually, the washers may be mismatched, as shown in Fig. 1, the solid portion of one washer coming 15 in line with the perforated portion of another.

I claim—

1. The combination with the brush material; of perforated washers embeddied in said

material; and a clamping device for the brush material adapted to force the said brush ma- 20 terial laterally into the perforations, as set forth.

2. The combination with the brush material; of perforated washers embedded in said material; flexible washers at opposite sides 25 of said perforated washers; and a clamping device for the brush material adapted to force the said brush material laterally into the perforations, as set forth.

In testimony whereof I have signed my 30 name to this specification in the presence of two subscribing witnesses.

CHARLES E. GRAHAM.

Witnesses:

HENRY J. LIVERMORE,
JAS. J. MALONEY.