

J. J. C. SMITH.
Brush.

No. 220,947.

Patented Oct. 28, 1879.

Fig. 1.

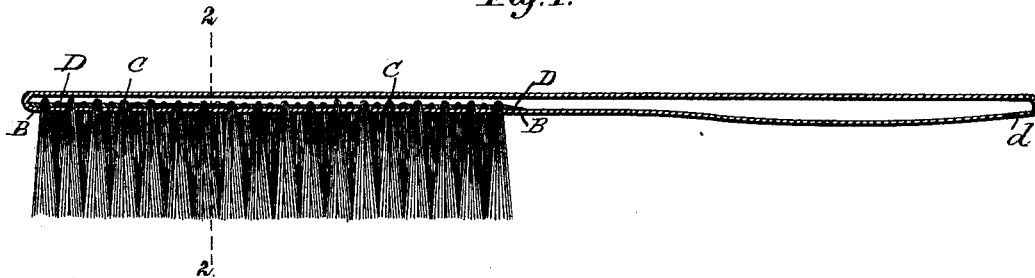
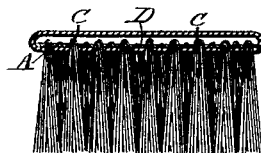


Fig. 2.



Attest.

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UNITED STATES PATENT OFFICE.

JOHN J. C. SMITH, OF SOMERVILLE, MASS., ASSIGNOR TO COLLEGE POINT RUBBER COMPANY, (LIMITED,) OF COLLEGE POINT, N. Y.

IMPROVEMENT IN BRUSHES.

Specification forming part of Letters Patent No. **220,947**, dated October 28, 1879; application filed October 15, 1878.

To all whom it may concern:

Be it known that I, JOHN J. C. SMITH, of Somerville, Middlesex county, Massachusetts, have invented new and useful Improvements in Brushes, of which the following is a specification.

The object of this invention is to produce a brush body or handle of such a construction as to permit the setting of the bristle-bunches by means of a machine and hand apparatus; also, to admit of the perfect fastening of bunches of bristles by cement; and further, to effect the cementing of all the bunches the brush contains at one operation.

The old systems of making brushes are so well known that it will require no explanation other than a full description of my invention to point out the difference between mine and the known methods.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a longitudinal section of a hair-brush constructed according to my invention. Fig. 2 represents a cross-section on the line 2 2 of Fig. 1, through that part of the brush-body containing the bristles.

The material I use for my brush bodies or handles is, by preference, hard india-rubber; but other similar strong materials can be used.

One of the valuable features of my brush handle or body is, that it is hollow, and may be a mere shell. The advantages of making it so are, first, a handle or brush body is made as light as possible without diminishing its strength, and it saves material; second, the hollow handle or body gives a free space to fill in the cement, after the bunches are set in the brush-body, by means of a machine and hand apparatus.

The machine and hand apparatus I have invented and used for setting my bristle-bunches in the body will be fully described in a specification filed with my application for patent for said machine.

The handle or brush-body is formed of india-rubber, using any desired mold for that purpose, but is best formed by using either one of the methods described in Letters Patent No.

178,479 and No. 178,432, both being dated June 6, 1876; also, using in combination the molds, as far as practical, for that purpose, which are described in a specification filed with application filed by Jacob Stepp the 3d of August, 1878, on improvements in molds.

By applying the methods and principles described in the aforesaid patents the operator will be enabled to produce such handles or brush-bodies of any shape or design.

The handle or brush-body, when formed by the methods above referred to, is hollow. Proper holes A are drilled through the wall B, as shown in Fig. 1. Into these holes I insert the bristle-bunches by means of the machine and hand apparatus referred to above. The bristle-bunches, being formed by doubling up the bristles by means of my machine, can, by means of the hand apparatus, be pushed snugly into the holes A so far as to pass through the wall B of the brush-body, and project about one-eighth of an inch through the inside into the hollow space, as it is shown at C.

The projection of the doubled end of the bristle-bunches through the wall or shell into the hollow space is for the purpose of enabling the fluid cement D, which I use, to flow over and around the end of the bristle-bunches, thereby forming, so to say, a socket to each bunch inside of the brush-body, making it almost impossible to pull such a bunch from its position when the cement has become hard.

The cement I use is made in the following manner: Two ounces of gutta-percha are dissolved in one pound of bisulphide of carbon, to which is added about one pound of rosin. When properly dissolved it is about as fluid as a thick varnish. When perfectly dry it becomes very hard, and almost as tough as hard rubber.

When the holes in the brush-body are all filled with bristle-bunches, the brush is ready to be cemented. The cement is poured into the hollow space of the brush-body by the small aperture *d*. When filled with cement I turn the brush in every direction, so as to make sure that each bunch is properly brought into contact with the fluid cement. This done, the surplus of the cement is poured out of the same aperture through which it passed in. The brush is then laid away to dry and harden the

cement, which takes from eight to ten days. During that time the aperture *d* must be left open, so as to permit the vapors to escape and facilitate the drying of the cement. The aperture is closed by a plug when the cement is hardened sufficiently.

A brush made in this manner is not only very neat but durable. The handle or body is of one piece. The bristles are so firmly cemented in the body that no ordinary usage will ever loosen them, and water or moisture will not penetrate the body, as is the case with most brushes now in use, which is not only

objectionable, but detrimental to a brush, especially a hair-brush.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent—

A brush formed with a hollow body in one piece, and having tufts of bristles projecting within said hollow body, secured thereto by a filling or internal lining of cement.

JOHN J. C. SMITH.

Witnesses:

ALEX. WOOD,
JACOB STEPP.