(No Model.)

W. WALLACH.

BRUSH.

No. 523,058. Patented July 17, 1894.

Fig. 1.

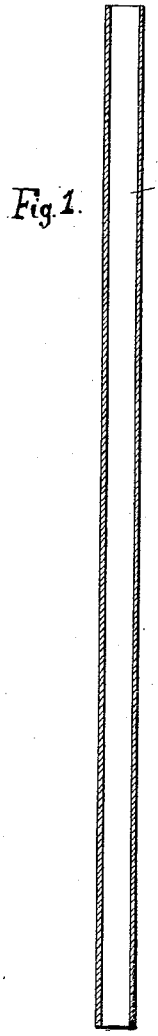


Fig. 2.

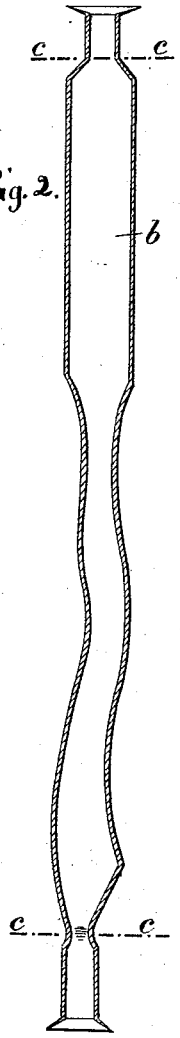


Fig. 3.

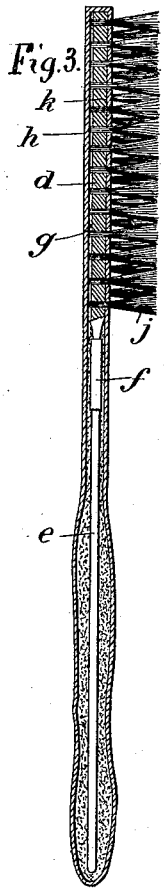


Fig. 4.

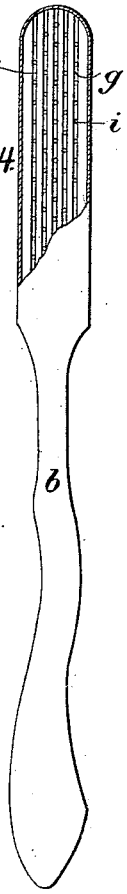
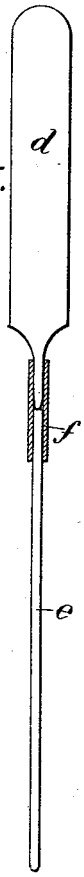


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLY WALLACH, OF PARIS, FRANCE.

BRUSH.

SPECIFICATION forming part of Letters Patent No. 523,058, dated July 17, 1894.

Application filed April 16, 1894. Serial No. 507,760. (No model.)

To all whom it may concern:

Be it known that I, WILLY WALLACH, a citizen of the United States, residing at 91 Rue Lafayette, Paris, France, have invented certain new and useful Improvements in Brushes; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to improvements connected with brushes generally, but more particularly applicable to a finer class of brushes such as tooth-brushes, nail-brushes and other like brushes for personal use, and the invention consists in the features and the combination or arrangement of parts hereinafter described and claimed.

By way of example, I have selected a tooth-brush as illustrative of one of the kinds of brushes which can best be produced in accordance with my improvements.

In the annexed drawings, Figure 1 shows, partly in section, a piece or tube of pyroxiline or nitro-cellulose compound to be employed in producing a tooth-brush blank. Fig. 2 shows the said piece in section after it has been molded into a blank. Fig. 3 shows the finished brush, in section. Fig. 4 is a side view of Fig. 3, partly broken, and Fig. 5 is a detached view of one kind of filling for the said brush.

The piece or tube *a*, Fig. 1, of celluloid or nitro-cellulose compound, is converted into a blank *b*, Fig. 2, by the known process of molding celluloid, consisting, broadly speaking, in placing the tube into a mold and in subjecting it internally to the action, first, of a heating medium and, second, of a cooling medium, whereby the said tube is molded. The blank *b*, whether produced as above mentioned or in any other known way, then requires to be filled and completed. The shank or handle portion can be filled with any suitable powdered material compressed or not, whether wet or dry, and capable of giving consistency and resistance to the article, such for instance as a mixture of plaster of Paris and water. The head portion is best filled with a piece of some hard material into which the bristles can be secured, as usual. I, however, prefer to fill the blank *a* as shown, by way of example, in the annexed drawings. The ends of the blank are cut off on the plane shown by the dotted lines *c*, *c* and the head-end of the blank is opened so as to enable the introduction of the filling therein to. A filling is formed of a piece of bone *d*, Fig. 5 and a stem of any suitable metal *e*, rigidly united by a metallic sleeve *f*, or otherwise, and is then introduced into the blank *b* in such a manner that the bone portion *d* completely fills out the head of the blank, while a space is left between the stem *e* and the handle of the blank. The filling having been introduced, the article is turned upside down, as compared with Fig. 3, and a suitable liquid or other filling is run into the space left between *b* and *e* after which the end of the blank *b* adjacent to the end of the stem *e* is closed up and finished in the way well-known to those skilled in the art of working celluloid.

The next operation consists in attaching the bristles or hair to the head of the brush. For this purpose, the ordinary method or any other suitable method may be used.

In the annexed drawings, I have shown the employment of the means usually resorted to for that purpose. Sets of parallel channels *g* are bored longitudinally along one face of the bone filling *d*, while leaving the inner face *h* of the head of the blank *b* intact. Sets of holes *i*, for the reception of the tufts *j*, are drilled through the face *k* of the head of the blank and also through the filling *d*, the said holes *i* issuing into the channels *g*. The means of introducing and securing the tufts *j* is well known and needs no description.

The only operation to be performed is to close up the remaining unclosed end of the blank *b*. This is effected by covering up the end of the bone *d* with a piece of celluloid and by cementing the joint as is well known to those skilled in the art. The brush is then ready to be polished and otherwise finished.

I wish it to be understood that, while I have mentioned pyroxiline or nitro-cellulose compounds as being the material which is used for forming the outer shell or case, any other equivalent plastic material or any other material capable of being molded can be used.

I claim—

1. A brush consisting of a hollow casing *b*, a hard portion *d* inclosed within the casing and to which the bristles are attached, a metal

stem *e* connected with the said hard portion, and a filling inserted into the hollow casing about the said metal stem, substantially as described.

2. A brush consisting of a molded tube of plastic material, a hard bristle-holding portion *d* inclosed within the tube and to which the bristles are attached, a stem *e*, a sleeve *f* connecting the said stem with the said bristle-holding portion, and a filling inserted into the tube about the said stem, substantially as described.

In witness whereof I have hereunto set my hand this 3d day of April, 1894.

WILLY WALLACH.

Witnesses:
R. H. BRANDON,
D. H. BRANDON.