F. ZIELINSKI.

BRUSH BACK BLANK.

APPLICATION FILED SEPT. 9, 1910.

1,039,005.

Patented Sept. 17, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

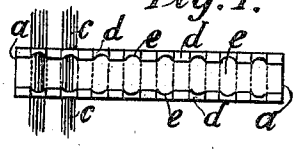
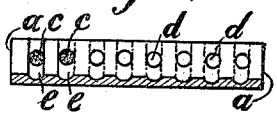


Fig. 2.

Fig. 3.



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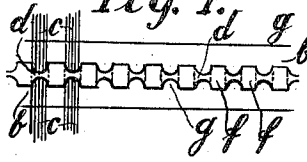

Fig. 5.

Fig. 6.

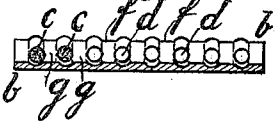

Fig. 7.

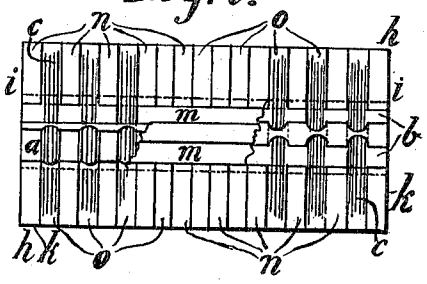

Fig. 8.

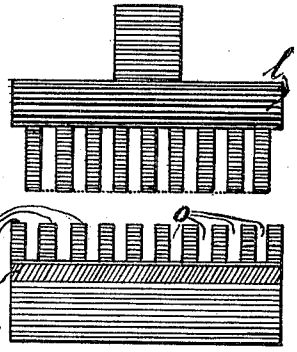

Fig. 9.

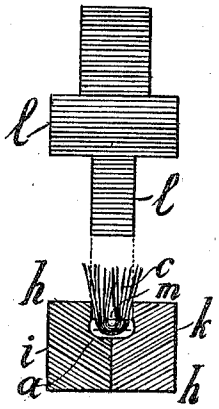

Fig. 10.

Fig. 11.

Fig. 12.

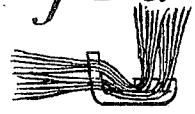

Fig. 13.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 14

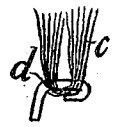


Fig. 15.

Fig. 16.

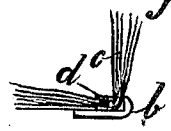


Fig. 17.

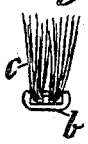


Fig. 18.

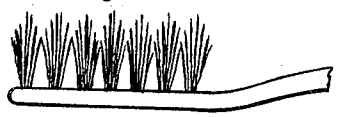
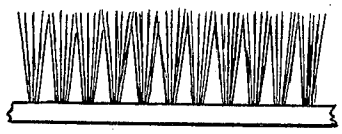


Fig. 19.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANCISZEK ZIELINSKI, OF WARSAW, RUSSIA.

BRUSH-BACK BLANK.

1,039,005. Specification of Letters Patent. Patented Sept. 17, 1912.

Application filed September 9, 1910. Serial No. 581,151.

To all whom it may concern:

Be it known that I, FRANCISZEK ZIELINSKI, residing at Zgoda street, 6, Warsaw, Russia, have invented certain new and useful Improvements in Brush-Back Blanks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The subject of my invention is an improved method of fixing bristles in stocks, more especially stocks made of cast or stamped aluminium, which has the advantage over the method at present in use that the bundles or tufts of bristles need not be glued, sewn, pressed or jammed into sockets or other holders.

According to the invention the bundles are first inserted into angular or U or T shaped blanks of soft metal, preferably aluminium, which blanks are provided with holes for the reception of the bundles. After pushing the bundles through the holes, the blanks are placed in suitable matrices and are compressed so as to form stocks firmly holding the bundles.

The accompanying drawings illustrate several modes of carrying out the improved method.

Figure 1 is a top view, Fig. 2 a cross section and Fig. 3 a longitudinal section of one form of blank. Fig. 4 is a top view, Fig. 5 a cross section and Fig. 6 a longitudinal section of another form of blank used. Fig. 7 is a top view, Fig. 8 a longitudinal section and Fig. 9 a cross section of the die-press. Figs. 10 and 11 illustrate the doubling of the bundle when using U shaped blanks. Figs. 12 and 13 illustrate the arrangement of bundles when making wider brushes. Figs. 14 and 15 illustrate a modified method of inserting the bundles into the blanks. Figs. 16 and 17 illustrate the doubling of the bundle when using T shaped blanks. Figs. 18 and 19 represent the heads of two tooth brushes made according to the invention.

The blanks which are preferably made of cast or stamped aluminum, are either U-shaped blanks *a* (Figs. 1, 2 and 3) with transverse vertical recesses *e* for the bundles of bristles *c*, or they are T-shaped blanks *b* (Figs. 4, 5 and 6) the longitudinal ribs *f* of which are provided on both sides with vertical recesses or grooves *g* into which the bundles of the finished brush fit. The side members of the blank *a* and rib *f* of the blank *b* are provided with holes *d* through which the bundles are pushed. The blanks *a* or *b* are then placed into suitable matrices *h* (Figs. 7, 8 and 9) the two parts *i* and *k* of which are made with recesses *m*, teeth *n* and slots *o* between the teeth. The blanks are inserted in such a manner that the bundles *c* pass through the slots *o* between the teeth *n*, while the blanks themselves fit into the recesses *m* (see Fig. 7). The two parts *i* and *k* of the matrix are then brought together to compress the blank transversely in a horizontal direction. In the case of the blank seen in Figs. 1, 2 and 3 a die *l* is then used which compresses the blank *a* vertically and presses the two edge portions of the blank flat into one plane. By this operation the bundles are doubled on themselves and the two tufts thus produced are brought into vertical position, the successive positions assumed by the bristles being shown in Figs. 10 and 11. It will be seen that the bundles are firmly held in the stock by the bent-over edge portions of the blank. In the case of the T-shaped blanks *b* (Figs. 4, 5, 6, 16 and 17) a similar matrix *h* consisting of two parts *k*, *i* (Fig. 7) is used, but it is sufficient to compress the blank transversely in a horizontal direction by bringing the two halves of the matrix together, in order to raise the tufts into the vertical position, and no vertical die *l* is required.

For making a wider brush having four rows of bundles (see Figs. 12 and 13) two rows of holes, one above the other, are bored in each of the sides of the U shaped blank, and the blanks are then compressed in the same manner as before, matrices of greater width being used.

Figs. 14 and 15 illustrate a modified manner of inserting the bundles into the blanks, according to which the bundles are inserted into the holes provided in the bottom part of the blank. The blank is then compressed in a similar manner to that above described.

Figs. 18 and 19 show the finished brushes. By the described method brushes of any desired length may be produced with the aid of the same die-press, by gradually moving the blank in its longitudinal direction through the matrices.

The blanks *a* or *b* may be formed with in-

tegral handle portions and may be made of any desired straight or curved form.

The main advantages of the invention are that it enables the manufacture to be simply and rapidly effected and that it renders possible the use of aluminium which does not retain the moisture and is very little liable to oxidation. From the sanitary point of view aluminium is an excellent material and is particularly suitable for tooth brushes and the like.

I claim:

1. A brush back blank comprising a soft or malleable metal blank having an upstanding rib or flange provided with transverse bristle tuft receiving perforations located and adapted to permit the tufts to be doubled and clamped by the metal of the blank when folded and compressed thereupon.

2. A brush back blank, comprising a soft or malleable blank having two upstanding ribs or flanges, each of which is provided with transverse perforations situated opposite perforations in the other rib or flange, said perforations being adapted to receive and hold bristle tufts by the middle and permit them to be doubled and clamped by the metal of the blank when the flanges are folded and compressed thereon.

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

FRANCISZEK ZIELINSKI.

Witnesses:

STANISTAW POSKOCZEGRU,

FRANCIS TREMBICKI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."