

R. GRABEIN.
METHOD OF TREATING HORSEHAIR.
APPLICATION FILED APR. 25, 1911.

1,057,724.

Patented Apr. 1, 1913.

Fig. 1.

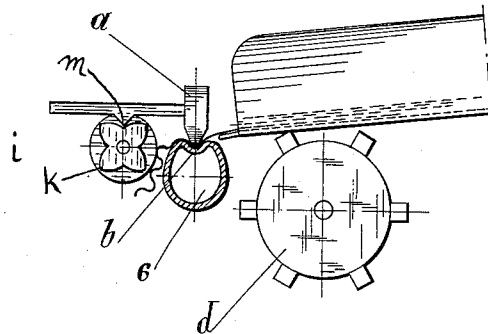


Fig. 3.

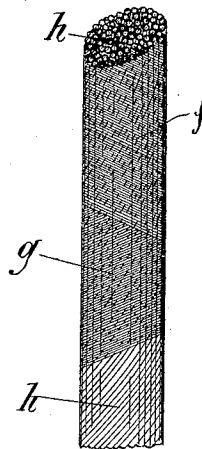
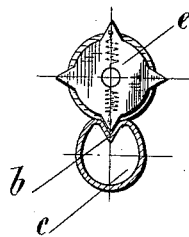


Fig. 2.



WITNESSES:

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METHOD OF TREATING HORSEHAIR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, REINHOLD GRABEIN, manufacturer, a subject of the King of Prussia, German Emperor, and resident of No. 9 Richt street, in Forst, Lusatia, in the Kingdom of Prussia, German Empire, have invented new and Improved Means for the Method of Treating Horsehair to be Spun into Threads or Woven into a Fabric, of which the following is a specification.

This invention relates to the preliminary treatment of horsehair to be spun into threads or woven into a fabric.

Horsehair when worked up into threads or into a fabric is subject to the disadvantage that its ends work themselves free when the thread or fabric is repeatedly bent or folded; this defect occurring more especially when short hairs are bound together in the well-known manner by one or more threads wound around them; and the shorter the pieces of horsehair the more likely are their ends to work themselves outside of the fabric. To obviate this advantage it has been proposed to heat the ends of the horsehair and by this means to provide them with a bulb or a hook. When, however, the fabric into which the hair is spun is cut it naturally arises that these bulbous or hooked ends are cut away with the result that they spring out clear of the fabric.

Now according to the present invention the above mentioned defect is avoided by curling or corrugating the horsehair before spinning it into a continuous thread, with the result that the separate pieces of hair wind themselves spirally around each other and when the fabric is bent or folded are no longer able to work themselves free as the spirals become compressed, and cause the hair to be still more firmly gripped. The curling of the pieces of horsehair in accordance with the present invention is advantageously effected by means of heat after the hair has been drawn out of the bundle of horsehair.

In order to make my invention more clear, I refer to the accompanying drawing, in which similar letters denote similar parts throughout the several views, and in which:

Figure 1 is a diagrammatical representation of an apparatus for carrying out the process in accordance with this invention. Fig. 2 is a diagrammatical representation of

a modified form of construction of said apparatus, and Fig. 3 shows a piece of horsehair-thread in a greatly enlarged scale.

In the arrangement shown in Fig. 1 the horsehair thread, is by means of a small hammer *a*, pressed into the groove *b* of a tube *c* which is preferably heated by steam. The hammer *a* is actuated by means of rotatable member *i* provided with cams *k* with which a projection *m* on the hammer engages. The member *i* may be driven by any convenient means from the rotating feeding device *d* which may be of any suitable construction and which feeds the hairs to the hammer *a* and tube *c*.

In the arrangement illustrated in Fig. 2 the curling operation is effected by means of a star wheel the teeth of which engage with the groove *b* of the heated tube *c*. The wheel *e* is spring-supported with the result that it can rotate notwithstanding the engagement of its teeth with the groove.

For the arrangements described there may of course be substituted any other suitable contrivance by means of which the curling of the horsehairs can be effected, provided that care is taken that the shape of the hair is permanently modified and that the change of form is effected by means of heat. If the latter is not done, it will not be possible to attain the desired object; on the contrary the corrugating of the horsehair which will result will make it easier for its ends to work themselves outside the thread of fabric. But if the horsehair is treated as described, a thread of excellent behavior is obtained. The pieces of horsehair wind themselves spirally around each other, as shown at *h* in Fig. 3. *f* and *g* in this figure are the threads that are wound crosswise around the horsehair. There is now no working free of the ends of the finished horsehair-thread and the drawback mentioned in the preamble is completely overcome.

Having now described my invention what I desire to secure by a patent of the United States is:

1. The herein described method of treating horse hairs, which consists in feeding the hairs successively in a row and in overlapping relation to one another, coiling or corrugating the fed hairs without altering their structure, and then allowing the over-

lapping portions of the coiled or corrugated hairs to interlock with one another.

2. The herein described method of treating horse hairs, which consists in feeding
3 the hairs in a row and curling or corrugating the fed hairs without altering their structure.

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

REINHOLD GRABEIN.

Witnesses:

WILHELM SCHMERSCH,
RICHARD VOGT.

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