C. G. STEBBINS & A. GELOW.

QUILL BONING.

APPLICATION FILED APR. 29, 1915.

1,231,089. Patented June 26, 1917.

Fig. 1

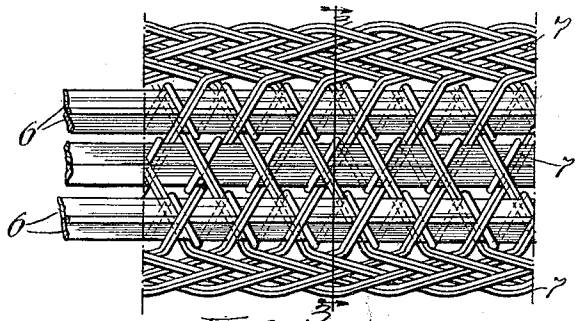


Fig. 2.

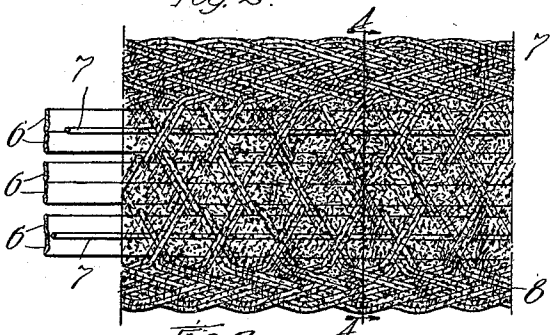


Fig. 3

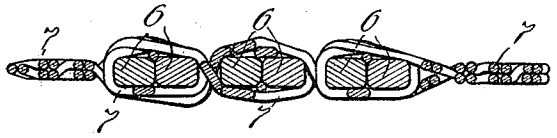


Fig. 4.

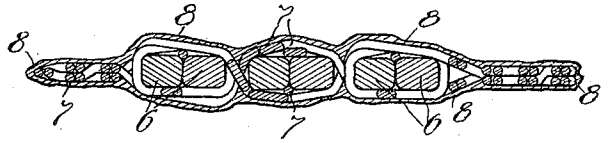
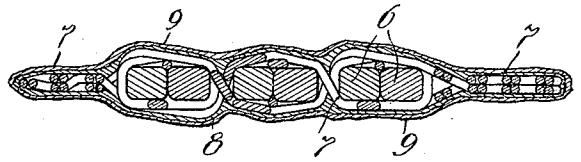


Fig. 5



Witnesses
Herbert Value.
Stephen Petrova

Inventor:
Carl G. Stebbins
Albert Gelow
By James R. Offield Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CARL G. STEBBINS AND ALBERT GELOW, OF THREE OAKS, MICHIGAN, ASSIGNORS TO THE WARREN FEATHERBONE COMPANY, OF THREE OAKS, MICHIGAN, A CORPORATION OF MICHIGAN.

QUILL BONING.

1,231,089. Specification of Letters Patent. Patented June 26, 1917.

Application filed April 29, 1915. Serial No. 24,662.

To all whom it may concern:

Be it known that we, CARL G. STEBBINS and ALBERT GELOW, citizens of the United States, residing in the town of Three Oaks, county of Berrien and State of Michigan, have invented certain new and useful Improvements in Quill Boning, of which the following is a specification.

Our invention relates to a new product or article of manufacture, consisting of a quill boning which is rendered impervious to moisture, whereby the resiliency of the quills from which the structure is made will be preserved and the structure as a whole rendered more durable and lasting.

In the manufacture of quill boning the quills of turkeys or other fowls are split or shredded longitudinally into filaments or fibers which are bound together by thread to form blades or cords. When so bound a resilient structure is obtained adapted for many uses in apparel for women and which may be incorporated into other articles where a resilient stiffening material is desired.

While quill boning is an old and well known article and has met with great popularity in the trade, nevertheless, there has been certain recognized defects which manufacturers thereof have heretofore been unable to overcome. It has been found that after a certain period of wear the quill filaments or fibers lose their resiliency and that the structure as a whole disintegrates.

We have discovered that the alternate action of moisture and heat produces chemical changes not only in the quill filaments but in the thread which binds such filaments together. These chemical changes are largely due to bacteria which have been introduced by moisture and heat, as such bacteria propagate rapidly in any substance which is nitrogenous in character, such as the quills of fowls.

The quill boning employed in apparel for women is not only subjected to the moisture and heat of the body but must be washed and ironed as well, and the physical properties of the quill are not only thus impaired by the chemical changes but the thread rots as well and, as a consequence, the article both loses its resiliency and disintegrates.

Our present invention therefore resides in the production of a quill boning that retains its natural resiliency and does not disintegrate, thereby adding life to the structure to a great degree.

The means by which we accomplish our object consists in immersing the heretofore finished product in a waterproof substance whereby the horny portions of the quill will be coated with such waterproof substance and the absorptive portions of the quill, as well as the thread which binds the filaments or fibers together, will be saturated with such waterproof substance. In addition to the coating of the quills and the absorption of the waterproof substance by the absorptive matter in the structure, it has also been found that the spaces or interstices between the filaments or fibers will be filled with such waterproof substance and, as the waterproof substance used by us remains flexible, the completed product is given a much more finished appearance in addition to being otherwise greatly improved.

The waterproof substance used may, of course, be varied in its nature, it only being necessary that it have the essential characteristics of being thoroughly moisture proof, flexible and unaffected by the ordinary temperatures to which it is subjected, such as the heat of the body, hot water and the heat from a flat-iron.

We have also found that the cost of waterproofing may be somewhat reduced by first immersing the structure in a glue or sizing not having true waterproofing characteristics. A sizing or glue provides a bond between the plurality of fibers composing the structure and for initially filling in the interstices or voids between the fibers and it is also absorbed by the absorptive matter in the structure. The article is then immersed in a waterproof substance and it will be readily seen that the amount of waterproof substance necessary to thoroughly waterproof the article will be greatly reduced when a sizing is previously used.

In the accompanying drawing

Figure 1 is an enlarged plan view of a section of boning without a sizing or waterproofing.

Fig. 2 is a view similar to Fig. 1 with a sizing applied.

Fig. 3 is a section on line 3—3 of Fig. 1.

Fig. 4 is a section on line 4—4 of Fig. 2.

Fig. 5 is a section of the structure shown in Fig. 3 with the waterproof coating applied thereto.

Referring now more particularly to the drawing, the boning or stiffening member may consist of any number of filaments or fibers properly bound together and as herein shown it consists of six filaments or fibers 6 arranged side by side and joined together by weaving or braiding thread 7 thereabout, in a heretofore old and well known manner.

After the structure has been thus formed it is immersed in a bath of sizing 8 which is absorbed by the threads and such other absorptive matter in the structure such as the porous substances of the quill.

The sizing may be any cheap form of filler, such as ordinary glue.

After the sizing is dry the structure is then immersed in a waterproofing liquid 9, which fills all the voids or interstices between the filaments and binding material thereby giving the structure a smooth finished appearance in addition to greatly increasing the life and resiliency of the structure as a whole.

Having now described our invention, we claim:

As a new article of manufacture, a quill boning consisting of quill fibers bound together with thread, a sizing for initially filling in the interstices or voids between the fibers and adapted to be absorbed by the absorptive matter within the fibers and by the thread, and a waterproof coating surrounding said fibers, thread and sizing.

CARL G. STEBBINS.
ALBERT GELOW.

Witnesses:
MORRIS G. MCGAWN,
FRED EDINGER.

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