No. 824,608. PATENTED JUNE 26, 1906.

# W. WEBSTER.

## STIFFENING BLADE.

APPLICATION FILED OCT. 5, 1903.

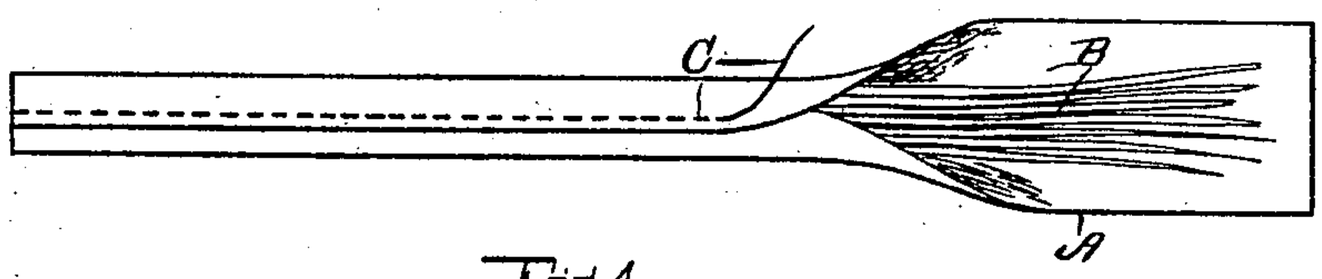


Fig. 1

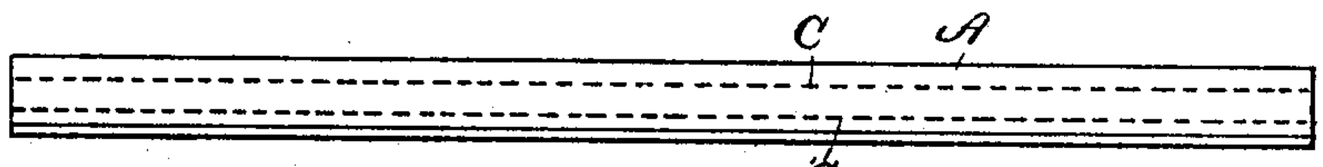


Fig. 2


Fig. 3

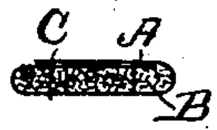


Fig. 4




Fig. 5

Witnesses:
Ethel A. Teller
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# UNITED STATES PATENT OFFICE.

WILLIAM WEBSTER, OF LONDON, CANADA, ASSIGNOR TO WARREN FEATHERBONE COMPANY, OF THREE OAKS, MICHIGAN, A CORPORATION.

## STIFFENING-BLADE.

No. 824,608. Specification of Letters Patent. Patented June 26, 1906.

Application filed October 5, 1903. Serial No. 175,826.

*To all whom it may concern:*

Be it known that I, WILLIAM WEBSTER, a citizen of the Dominion of Canada, residing at the city of London, in the county of Middlesex, and Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Stiffening-Blades, of which the following is a specification.

This invention relates to improvements in stiffening cords or tapes and the method of manufacturing the same.

The objects of the invention are to provide an expeditious method of assembling fibers into a cord or tape or blade and to provide an efficient and simple structure when the same is completed.

The method here described is very efficient and at the same time reduces the cost of manufacture without in any way cheapening the completed structure or making it less effective. At the same time it utilizes effectively both short and long fibers.

Minor objects will definitely appear in the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 illustrates the method of manufacturing my improved stiffening cord or tape. Fig. 2 is a plan view of a short section of a completed blade without processing. Fig. 3 is a plan view of a section of my improved stiffening-blade after the same has been processed. Fig. 4 is a detail cross-sectional view of the structure appearing in Fig. 2. Fig. 5 is a detail cross-sectional view of the structure appearing in Fig. 3.

In the drawings similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A is a tape or strip of cloth or suitable material of sufficient size to form a wrapper around the cord or blade, so that its edges will lap to receive rows of stitching.

B is the loose unassembled fiber, preferably fibered quills or the enamel portion of feathers fibered, although the method of manufacture is adapted to a great variety of fibers and might be made use of in connection with coarse hair or bristles, although I apply it almost exclusively to the fiber first mentioned.

The tape or strip A is first wrapped around the loose unassembled fibers, a sufficient quantity of the same being used to make a cord of the desired size and as near cylindrical as possible. Then rows of stitches C, made, preferably, on a two-needle machine, are inserted lengthwise of the same to hold the covering A in position, and also by forcing cross-strands through the bundle of fibers, compressing the same, and drawing the covering out, so that a smooth firm cord is the result. The two-needle machine is like that appearing in the concurrent application herewith, in which but a single shuttle is used, making a stitch like that appearing in Figs. 2 and 4. Where a narrow cord is desired, but a single row of stitching is all that is required. The cord or tape when made in this way is suitably processed, or it can be used very satisfactorily without giving it any further attention. When the same is processed, by which I mean treated as described in patent to Warren and Holden, No. 559,827, of May 2, 1896, I prefer to use a very thin material for the wrapper A, as gauze or light cheesecloth, because in that event the covering is only necessary to retain the fibers temporarily, the process uniting the same together, and if the wrapping is very thin it permits the sizing to readily enter the blade. As I have indicated, however, any suitable material can be used for the wrapper.

The method of manufacturing, it will be observed, is to collect the loose fibers, wrap a tape or ribbon around the same, and compact the whole and retain it together by a longitudinal row or rows of stitches therethrough. The whole can be processed thereafter, according to the process of the said Warren and Holden patent.

The product differs from other products in that the loose unassembled fibers are collected together and retained by the ribbon around them, which serves a further purpose than a mere finishing-piece, the ribbon being retained by a longitudinal row or rows of stitches therethrough.

I am aware that wrappers have been put around assembled fibers and retained by lon-

gitudinal stitching, but believe that I am the first to make use of loose unassembled fiber.

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

1. A blade made up of quill fiber retained in a bundle by a tape folded around the same compressed and secured by a longitudinal row of stitches, the fibers being compacted and cemented together, as specified.

2. A blade made up of fiber retained in a bundle by a tape folded around the same compressed and secured by a longitudinal row of stitches.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

WILLIAM WEBSTER. [L. S.]

Witnesses:
HERBERT MCNAB,
LAURA RANAHAN.