

UNITED STATES PATENT OFFICE.

ALBERT H. HENDERSON, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE HENDERSON RUBBER COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

FIBROUS THREAD.

1,093,183.

Specification of Letters Patent.

Patented Apr. 14, 1914.

No Drawing.

Application filed January 6, 1913. Serial No. 740,344.

To all whom it may concern:

Be it known that I, ALBERT H. HENDERSON, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented new and useful Improvements in Fibrous Threads, of which the following is a specification.

My invention relates to an improved textile or fibrous thread adapted for use in the various arts and, if desired, to be woven or wrought into a fabric or cloth.

In my Patent No. 1,020,499, dated March 19, 1912, is described and claimed, in part, a method of treating fabrics from which the oils, waxes and resins have been removed by mercerization, the said method involving the filling of the interiors of the fibers and the interstices existing between the juxtaposed fibers with rubber. The same patent also has relation to the product of such method. In my application Serial No. 674,682, filed February 1, 1912, is described and claimed a mercerized fabric of distinctive character treated in a manner similar to that set forth in my aforesaid patent.

My present invention is directed to a mercerized fibrous thread or collection of filaments, the said thread being first cleansed, thereafter subjected to a mercerizing process, and interiorly filled, impregnated and coated with rubber, the latter being applied to the mercerized thread in any form suited to the conditions, whether in the form of a solution or otherwise. The term rubber is here meant to include any of the known substitutes for that article, or reclaimed rubbers adapted to the purpose in view.

While in my Patent No. 1,020,499, and in my said application Serial No. 674,682, after the cloth has been woven or wrought, the threads and fibers constituting the fabric and the interstices existing between the juxtaposed threads or fibers of such fabric are substantially filled with rubber, certain conditions may arise, as in unskillful manipulations or with defective material, under which an incomplete filling or a coating of the fibers may occur.

Therefore, one of the objects of my present invention is to avoid such contingencies by treating the individual thread interiorly and exteriorly with rubber, so that it may thereafter be woven or wrought into a fabric or cloth, and if necessary be finally sub-

jected to further rubber treatment whereby any insufficiency in the filling of the interstices existing between the juxtaposed fibers may be rectified and the most perfect rubber surface practicable obtained.

I have discovered after examinations and tests made microscopically, chemically, and with the aid of the camera, that ordinary cotton thread after mercerization, is as to each of its filaments or fibers, a clean hollow tube adapted as an unobstructed receptacle for rubber within its interior, and also cleansed and fitted for a coating of rubber upon its exterior, so that when rubber-treated and woven or wrought into a fabric the walls of each filament or fiber are prevented by the rubber from collapsing under pressure or movement, and that in consequence no friction can exist between such walls but is taken up by the rubber. Furthermore, that inasmuch as the exterior of each filament or fiber is coated with rubber the friction to which a wrought or woven fabric made of such constituents is subjected is not thrown upon the cotton itself but upon such rubber coating, whereby the strength and durability of the fabric are greatly increased. Under my present invention, the preliminary mercerization of the individual thread, or the collection of fibers constituting it, followed by the individual filling and the exterior coating of each fiber with rubber, permits of a tighter weave whereby the various elements entering into the cloth are caused to more closely unite and adhere than where the rubber treatment is carried out after the threads or fibers have been woven or wrought into a cloth.

My invention is applicable to a single thread or to a single or multiple ply fabric made of threads individually treated in the manner herein described. Sheets of such fabric may, if required, be consolidated by compression and thus adapted for uses in the various arts.

In preparing my improved article of manufacture for the market the rubber constituent may or may not be vulcanized.

So far as I am advised, no cotton or other individual thread was, prior to my invention, mercerized whereby to produce such interior and exterior conditions, adapted to the filling and coating with rubber, as are

herein described; nor, so far as I am informed, was any mercerized thread; prior to my discovery of its affinity for rubber, treated with such substance either within
5 or without or in any manner.

The method of preparing my improved thread, or any mechanical appliance used in carrying out such method, forms no part of my present invention.

10 Having thus described my invention, I claim:—

1. The herein described article of manufacture consisting of a mercerized fibrous thread the interior of each constituent part

of which is filled and the exterior of which 15 is coated with rubber.

2. The herein described article of manufacture consisting of a mercerized fibrous thread the interior of each constituent part of which is filled and the exterior of which 20 is coated with rubber, the latter being vulcanized.

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

ALBERT H. HENDERSON.

Witnesses:

C. B. BULL,

CHARLES LOWELL HOWARD.