

# UNITED STATES PATENT OFFICE

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## THREAD OR FABRIC TREATMENT

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2 Claims. (Cl. 91—70)

Our present invention concerns a new and novel manner of uniting regenerated cellulose threads with rubber.

More specifically, our present application concerns a novel treatment for regenerated cellulose prior to its combination with rubber.

In the Taylor application, Serial No. 8,306, filed February 26, 1935, a method of pre-treating regenerated cellulose so that its affinity for rubber is increased, is set forth.

Essentially, the problem presented to the industry is that cotton appears to have a natural tendency to adhere to rubber, which property is not inherent to man-made threads. Chemical and/or physical treatment of the yarn or thread, as a thread or as a fabric, are set forth in the two applications above identified. In using the term "treated" thread in the claims, we intend to cover such yarn, and any other artificial yarn, thread, or fabric which has been treated to increase its affinity for, or adherence to, rubber.

Cotton, used heretofore almost exclusively in the thread and fabrics used in the manufacture of rubber tires, hosing, belting and other impregnated or laminated structures, may be used "cold" for the rubber treatment step. We have, by experiment, discovered that treated threads or fabrics are increased in their affinity for rubber in the unvulcanized state when they are first warmed, prior to impregnation or lamination. As an example, a treated thread or fabric will more quickly, more evenly, and with greater strength, adhere to unvulcanized rubber if it is first heated in an oven, or the like, until it reaches a temperature between 135° F. and the temperature of the plasticized, unvulcanized rubber to be used, which is usually about 160° F., or above.

This phenomenon is not predictable, and has been found to produce much better results than those obtainable when unheated or unwarmed, treated thread or fabric is employed. A much better impregnation of fabrics, for example, may be secured. This, then is the essence of our invention.

By "thread" we mean any yarn, filament, thread or non-round product producible by extrusion of an artificial cellulosic solution through a spinneret.

By "regenerated cellulose" we refer to threads, or fabrics produced therefrom, made from cellulosic solutions including viscose and/or cuprammonium cellulose as a portion thereof.

By "rubber" we do not intend to cover any suspension of latex but, on the other hand, only rubber in a masticated, plastic or liquid state.

By "fabric" we intend to cover also the so-called cord fabrics having none, or few, cross cords.

Having now set forth our invention as required by the patent statutes, what we desire to claim is:

1. In the process of rubberizing thread or fabric containing regenerated cellulose, the step of first warming the thread or fabric to a temperature above 135° F. and then directly applying the rubber which is of a temperature of at least 135° F. to the thus heated thread or fabric.

2. In the process of rubberizing a treated thread or fabric containing regenerated cellulose, the step of first warming the thread or fabric to a temperature between 135° F. and the temperature of a plasticized, unvulcanized rubber which is at least 135° F., and then directly applying the rubber to the thus treated thread or fabric.

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