Nov. 7, 1939. W. A. GIBBONS 2,179,087

ASBESTOS YARN

Filed Jan. 26, 1939

Fig. 1.

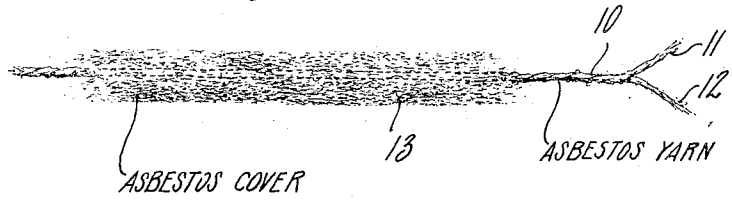


Fig. 2.

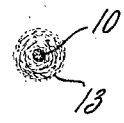


Fig. 3.

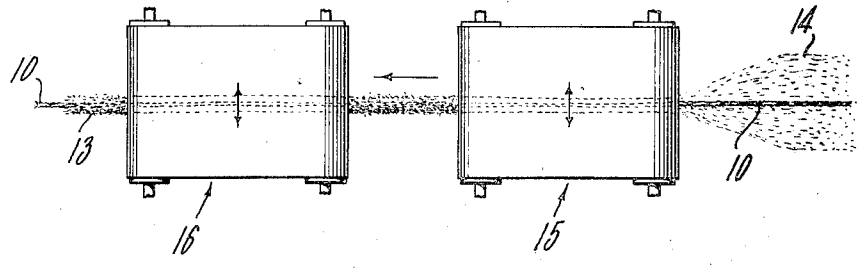
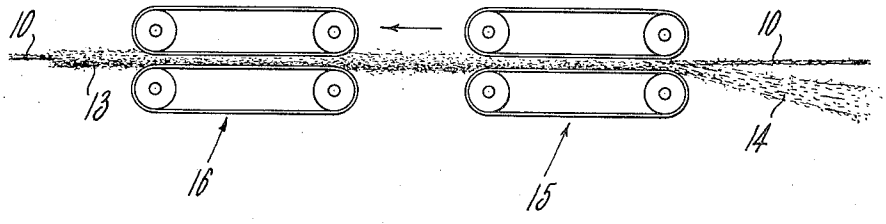


Fig. 4.



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UNITED STATES PATENT OFFICE

2,179,087

ASBESTOS YARN

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Application January 26, 1939, Serial No. 252,890

3 Claims. (Cl. 57—144)

This invention relates to asbestos yarn capable of withstanding high temperatures, and more particularly to a core yarn consisting of a spun asbestos yarn forming the core and a less compact asbestos cover surrounding the core.

The asbestos yarn of the present invention is particularly well adapted for use in insulated cable constructions, brake lining, steam pipe covers and other fields where it is subjected to a temperature that is destructive to the usual animal or vegetable textile fibers.

It has been proposed heretofore to provide asbestos yarn by employing a wire or a textile yarn as a core and by covering the same with asbestos. In some of these constructions proposed heretofore the carded or otherwise prepared asbestos fibers have been secured about the core by a rubbing operation, while in other proposed constructions the asbestos fibers after having been secured to the core by a rubbing operation have been further secured thereto by a twisting or spinning operation.

In these prior constructions when the cores of such asbestos yarns are formed of organic material such as cotton or the like, the resulting asbestos yarn is not well adapted for use in brake linings, electrical insulation and other fields where the temperature to which it is likely to be subjected is sufficiently high to destroy such textile fibers, and when a wire is employed as the core, this wire may constitute a serious objection to the use of this material in electrical insulation.

A primary feature of the present invention resides in an asbestos yarn capable of withstanding high temperatures and which consists of a relatively strong asbestos core yarn adapted to impart the desired strength to the finished product and which is surrounded by a mass of relatively loose asbestos fibers that are rubbed about or otherwise secured in surrounding relation to the core.

The invention will be more fully understood from the following description when read in connection with the accompanying drawing, illustrating the asbestos yarn of the present invention and one method of making the same.

In the drawing:

Fig. 1 is an enlarged side elevation of a length of asbestos yarn of the present invention.

Fig. 2 is an end view of the asbestos yarn of Fig. 1.

Fig. 3 is a top plan view of two sets of rub aprons employed to apply the asbestos covering about the core yarn; and

Fig. 4 is a side elevation of the mechanism of Fig. 3.

The asbestos yarn of the present invention, as above pointed out, consists of a relatively strong core formed of a spun asbestos yarn and of a relatively large soft cover of comparatively loose asbestos fibers surrounding the core yarn.

The asbestos core yarn 10 may be any preferred or well known asbestos yarn capable of providing the required strength. It is, however, preferably constructed of drafted and spun asbestos fibers as contemplated by the Foster Patent 2,089,021 granted August 3, 1937, to thereby produce a relatively small yarn of considerable strength. The core yarn 10 is shown in the drawing as a ply yarn formed of the individual asbestos yarns 11 and 12 twisted together. This yarn 10 formed of asbestos fibers, as herein contemplated, is not only capable of withstanding much higher temperatures than a yarn of animal or vegetable fibers, but presents a relatively rough, irregular outer surface to which the fibers of the asbestos cover will cling more firmly than they will to a core formed of wire or cotton yarn such as employed heretofore.

The asbestos fibers forming the cover 13 may be prepared in a well known manner for delivery to the usual asbestos carding machine and the asbestos fibers may, if desired, have a small amount of cotton fibers added thereto to facilitate their handling until they are applied about the core yarn as a cover. Such cotton fibers, however, should not form more than a small percent of the cover 13 since they are likely to be destroyed by the high temperature to which it is contemplated the present asbestos yarn will be subjected.

The sheet of asbestos fibers as it leaves the carding machine (not shown) is preferably formed into a sliver 14 in which the fibers are in a loose untwisted condition. The flat sliver 14 may then be applied about the spun asbestos yarn 10 as a cover by a rubbing operation which is preferably performed by the spaced pairs of rubbing aprons 15 and 16, each consisting of a lower apron and an upper apron. These aprons operate in a well known manner and travel in a direction to advance the materials therebetween in the direction indicated by the arrow in Fig. 3, and they also have imparted thereto a lateral movement such as indicated by the arrows in Fig. 3 that cause the upper apron of a pair to move laterally in one direction while the lower apron of that pair moves laterally in the opposite direction to thereby rub the covering sliver 14

firmly about the asbestos core yarn 10 as the core 10 and sliver 14 are advanced between these rub aprons 15 and 16.

As a result of the present invention an asbestos core yarn is provided which possesses substantial strength and at the same time has a much softer exterior surface than the usual spun yarns. This makes the product well adapted for use in the field of electrical insulation and other fields where it is subjected to a temperature that would be destructive to yarns of cotton, wool or other organic textile fibers. Furthermore, since the asbestos core yarn has a comparatively rough, irregular outer surface, the asbestos covering will cling thereto much more securely than to the cores provided heretofore for such asbestos coverings.

The herein described asbestos yarn after being constructed in accordance with the present invention may if desired be made stronger and more compact by subjecting it to a twisting or spinning operation to more firmly secure the fiber of the outer cover about the core. Furthermore, the finished yarn may be impregnated with asphalt, pitches, chlorinated hydrocarbon waxes or other bonding agents. It is also contemplated that an asbestos cover may, if desired, be applied to the asbestos core as a winding or wrapping rather than by the above described rubbing operation.

It is desired to point out that by "asbestos material" or "asbestos yarn" as used in the specification and claims is meant material or yarn formed entirely or substantially entirely of asbestos fibers.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

1. An asbestos yarn capable of withstanding temperatures that are destructive to cotton fibers, which comprises a core of drafted and spun asbestos yarn having a relatively rough irregular surface, and a cover of loose asbestos fibers rolled thereupon into intimate engagement with said irregular surface to thereby form a core yarn having a spun asbestos core and an unspun asbestos cover surrounding the core.

2. An asbestos yarn capable of withstanding temperatures that are destructive to cotton fibers, which comprises a core of spun asbestos yarn having a relatively rough irregular surface, and a cover of loose asbestos fibers entirely surrounding said core and intimately engaging said irregular surface to thereby form a core yarn having a spun asbestos core and a less compact asbestos cover surrounding the core.

3. An asbestos yarn capable of withstanding temperatures that are destructive to cotton fibers, which comprises a core of spun asbestos ply yarn having a relatively rough irregular surface, an a cover of loose unspun asbestos fibers entirely surrounding said core and intimately engaging said irregular surface to thereby form a core yarn having a spun asbestos core and an unspun asbestos cover surrounding the core.

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DISCLAIMER

2,179,087.—*Willis A. Gibbons*, Montclair, N. J. ASBESTOS YARN. Patent dated November 7, 1939. Disclaimer filed September 15, 1942, by the assignee, *United States Rubber Company*.

Hereby enters this disclaimer to claims 2 and 3 of said patent.

[*Official Gazette October 27, 1942.*]

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