

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN ASBESTUS YARN.

Specification forming part of Letters Patent No. 130,537, dated August 13, 1872.

Specification describing an Asbestos Yarn, invented by JOHN S. ROSENTHAL, of Philadelphia, Pennsylvania.

### *Asbestos Yarn.*

My invention consists of yarn or thread composed of the spun or twisted disintegrated, carded, and otherwise treated, fibers of asbestos.

Fabrics made of the fibers of asbestos or amianthus were known to the ancients, and in modern times coarse fabrics of asbestos have been made by weaving the fragile strands or filaments with hempen yarn, and subsequently removing, by burning, the temporary supports afforded to the brittle mineral fibers, during the process of weaving, by the stronger yarn of vegetable fiber, thus leaving a fire-proof fabric, coarse in texture, and of little durability.

Prior to my invention no asbestos or amianthus yarn had been produced of a fineness and strength sufficient to permit its use in the weaving of the finer grades of flexible textile fabrics.

My yarn may be spun from the asbestos or amianthus fiber, for which Letters Patent were granted to me on the 6th day of August, 1872, this fiber consisting of disintegrated asbestos washed, combed, carded, and otherwise treated prior to spinning, which may be accomplished in the ordinary manner by usual spinning machinery.

The mode of disintegrating the crude mineral forms no part of my present invention; but I may remark that it may be subjected to the action of boiling lye, either in an open vessel or in a close vessel under pressure, the strength of the lye required and the duration of the treatment depending, in a great measure, on the character of the mineral, which differs considerably in its characteristics in different localities. The object of the lye is to

reduce the fibers to such a condition of flexibility as to permit their further disintegration by careful manipulation or suitable machinery, which prepares the fibers for washing, combing, carding, after which they are ready to be spun into the finest yarn for the manufacture of textile fabrics.

Before spinning, however, the fiber may be treated with a solution of sulphuric or other equivalent acid, as described in my said allowed application.

As before remarked, I here lay no claim to any specific alkaline or other preparatory chemical treatment of the crude mineral, for in place of alkaline or saponaceous treatment, the mineral may be subjected to the action of petroleum, or benzine, or other equivalent hydrocarbons, either cold or in the condition of heated liquids or vapors, with or without pressure. Alum, chloride of lime, and other substances or compounds, may also be used for reducing the mineral to a condition for mechanical disintegration preparatory to combing or carding.

When a perfectly fire-proof fabric is required, the yarn should be composed entirely of asbestos or amianthus fibers; but when a fabric not perfectly fire-proof is required, the fiber may be spun with any other vegetable fiber, or asbestos yarn may be twisted with yarn made of animal or vegetable fibers.

I claim as my invention, and as a new article of manufacture and commerce—

Yarn composed of the disintegrated, combed, carded, and otherwise treated fibers of asbestos or amianthus.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

J. S. ROSENTHAL.

Witnesses:

H. HOWSON,  
WM. A. STEEL.