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ANTI-MILDEW

## UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN PREVENTING MILDEW IN FABRICS FROM VEGETABLE FIBER.

Specification forming part of Letters Patent No. 151,762, dated June 9, 1874; application filed April 4, 1874.

*To all whom it may concern:*

Be it known that I, ALEXANDER DAVIDSON, of the city of Brooklyn, Kings county, New York, have invented a new and useful Improvement in the Art of Preventing Molding, Mildew, Rot, and Decay in Fabrics manufactured from cotton, flax, hemp, or other vegetable fiber, and of increasing the strength of such fabrics; and I do hereby declare the following to be a full, clear, and exact description of such improvement.

I believe that the various processes hitherto employed for the prevention of mildew in the fabrics above referred to have only reached the outside of the fabric, and have not penetrated the inner cells of the material, wherein are concealed the seeds of decay common to all vegetable fibers.

My plan aims to fill those cells with a tannic solution, and then to constrict the fabric I am treating by means of an alkali, caustic or otherwise, so that little or no water will afterward be absorbed, the water taken up upon the surface of the fabric soon evaporating.

To enable others skilled in the art to use my invention, I will proceed to describe the process I have adopted.

In a vat or bath I place a solution of sumac, oak-bark, catechu, or some other tannic astringent, of a strength, say, of one degree, Twaddell's hydrometer, (though I do not mean to restrict myself to the use of that particular strength, for there may be a range of from one degree to five,) and that solution I keep at a boiling-point by steam-pipes or otherwise. In the liquid, the temperature of which I maintain as I have stated, I place the fabric, where I allow it to remain until it is thoroughly saturated. While I do not prescribe any invariable period for the steeping of the fabric, I have found in my experience that twelve hours will generally suffice to effect its saturation. I then take out the fabric and dry it.

Though it be not indispensable to pass it through squeezing-rollers, I decidedly recommend that it be so passed, in order that the solution may be forced evenly into every part.

At any rate, it should be hung up to dry. This part of the process is not unlike the ordinary process of tanning hides.

After finishing the drying, I subject the fabric, in order to shrink it, to a bath in a solution of caustic soda. I prefer a solution of the strength of, say, six degrees of Twaddell's hydrometer, though the solution may be as weak as one degree, or as strong as twenty degrees, same hydrometer. In this latter bath I allow the fabric to remain several hours. The period of twelve hours I consider the best, though a variation of time either way to the extent of two or three hours might not greatly affect the result. I then wash the fabric in a tub, or in an ordinary washing-machine, and squeeze the water thoroughly out, after which, unless the fabric is to be used in the process of vulcanization, I run it through a weak solution of pyroligneous acid, of a strength, say, of half a degree, Twaddell's hydrometer, and then I squeeze the fabric thoroughly, and hang it up to dry.

When the fabric is to be used in the process of vulcanization, I omit entirely passing it through the solution of pyroligneous acid.

Under the action of the alkali the fibers become greatly constricted. I have repeatedly contracted muslin from one hundred and eighty to two hundred and sixty picks to the inch. The strength of this fabric is greatly increased by this shrinkage.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The application to fabrics manufactured from vegetable fiber of a tannic or astringent solution, substantially in the manner herein described, so that the interior of the fabric shall be filled with such solution, as hereinbefore described.

2. The constriction of the fabric by means of an alkali, caustic or otherwise, substantially in the manner above set forth.

ALEXANDER DAVIDSON.

Witnesses:

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