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METHOD OF MAKING MILDEW RESISTANT FIBROUS PRODUCTS

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7 Claims. (Cl. 28—1)

This invention relates to the manufacture of fibrous products and particularly to a new method of manufacturing mildew resistant fibrous products.

It has heretofore been the practice, in the manufacture of mildew resistant fibrous products, to treat the products with a mildew resisting material after the fabricating operations have been completed. This was done by dipping the fabricated fibrous product into a solution containing a mildew inhibitor and a volatile solvent and then drying the fibrous product by evaporating the volatile solvent. This method has a number of disadvantages. One of these is the difficulty in controlling the amount of mildew inhibitor deposited on the fibres. A similar disadvantage is the difficulty of depositing the mildew inhibitor equally and uniformly upon each individual fibre. Another is the expense involved in evaporating the solvent from the fabricated product and the fire hazard accompanying the evaporation when an inflammable solvent is used. Other disadvantages are the added cost due to delay while the fibrous product is being dried and the expense of equipment needed for dipping and drying the fibrous products.

I have found that many, if not all, the disadvantages of prior methods may be eliminated and new advantages achieved by preparing the mildew resistant fibrous material according to a new method differing materially from any heretofore employed. By following the present new method for the preparation of mildew resistant fibrous products a more thorough treatment of the fibre is obtained at substantially reduced cost. No expensive equipment is required and no delay is experienced in allowing for evaporation of a solvent. The amount of mildew preventative applied can be easily controlled with certainty and each fibre can be treated uniformly.

In the method of the present invention the fibres are treated with mildew inhibitor before they are fabricated into the finished product and while they are in a loose, free, and unfabricated condition. For example, fibres which are to be utilized in manufacturing fibrous products, such as raw, unfabricated cotton or other fibres, are arranged in a loose mass and then, while the fibres are in a loose condition, the entire mass is treated with a liquid mildew inhibitor in such manner as to deposit the mildew inhibitor evently and uniformly upon each individual fibre. The loose fibres treated with mildew inhibitor then are subjected to the usual fabricating operations such as drawing, spinning, weaving, knitting, and the like, to produce a desired fabricated fibrous product.

In a typical example of the present method of preparing mildew resistant fibrous products, cotton from the bale is subjected to an opening operation as by passing the cotton through a conventional opener or picker which fluffs the cotton into a loose mass, and then a mildew inhibitor such as a 5% solution of para-chloro-phenol in light mineral oil is sprayed in a finely atomized spray on the cotton until a total quantity of solution approximating 0.2% by weight of the cotton has been applied. Promptly after this treatment with mildew inhibitor, and without the necessity of an intervening drying period, the cotton is drawn, spun, woven or otherwise fabricated into any of the usual manufactured forms such as yarn, cord, thread, fabric sheeting or other forms. The amount of mildew inhibitor solution sprayed on the cotton ordinarily may be any amount from about 0.1% up to about 2% of the weight of the cotton. The application of quantities greatly exceeding 2% may interfere with subsequent fabricating operations and usually should be avoided.

Although it is not necessary, in the preferred procedure hereinabove outlined, to dry the treated cotton and although such elimination of the drying represents a substantial saving in cost, it is nevertheless to be understood that such drying is not prohibited.

The foregoing specific example accordingly is set forth merely as an illustration of a preferred mode of practicing my invention and I do not wish to limit the invention to the use of any particular mildew inhibitor, any particular solvent, or to any process limited to the manufacture of any particular type of cotton product but on the contrary, wish to include any and all known materials and products. Well known mildew inhibitors which may be employed include fungicides such as chlorinated phenols, organo mercury compounds, compounds such as salicylanilide or its sodium salt, zinc salicylate, naphthalide of salicylic acid, beta resorcylic anilide, beta chloro naphthol, sodium fluosilicate, thiocresol, pyridine, sodium para chlorophenate, tetra bromo beta naphthenol, para nitrophenol, and in fact, all known preventatives, inhibitors or retarders of mildew. Water or organic solvents such as light mineral oil, light fuel oil, or any other suitable solvent may be used as the vehicle for the active mildew inhibitor. Cords, yarns, threads, light fabrics, ducks or any such manufactured fibrous products may be prepared from

fibres treated according to the method of this invention. Likewise the invention is not restricted to the manufacture of cotton products but is applicable to the manufacture of all well known fabricated fibrous products subject to mildew.

It is therefore understood that I desire to claim this invention broadly, limited only by the spirit and scope of the appended claims.

I claim:

1. A method of making mildew resistant fabricated fibrous products which comprises providing a quantity of fibres in a loose, unfabricated condition, applying to the fibres while in such loose, unfabricated condition a mildew inhibitor in a quantity insufficient to require drying of the fibres and immediately thereafter subjecting the treated fibres to a fabricating operation.

2. A method of making mildew resistant fabricated fibrous products which comprises providing a quantity of fibres in a loose, unfabricated condition, spraying the fibres while in such loose, unfabricated condition with a controlled amount of an atomized spray of a mildew inhibitor in a quantity insufficient to require drying of the fibres, and immediately thereafter subjecting the treated fibres to a fabricating operation.

3. A method of making mildew resistant fabricated cotton products which comprises providing a quantity of cotton fibres in a loose, unfabricated condition, spraying the cotton fibres while in such loose, unfabricated condition with a quantity of an atomized spray of a mildew inhibitor dissolved in a light mineral oil insufficient to require drying of the cotton fibres, and immediately thereafter subjecting the treated cotton fibres to a fabricating operation.

4. A method of making mildew resistant fabricated cotton product which comprises providing a quantity of cotton fibres in a loose, unfabricated condition, spraying the cotton fibres while in such loose, unfabricated condition with an atomized spray of a mildew inhibitor dissolved in a light mineral oil, the spraying being continued only until a quantity of solution between 0.1% and 2.0% by weight on the cotton has been applied, and immediately thereafter subjecting the treated cotton fibres to a fabricating operation.

5. A method of making mildew resistant fabricated cotton products which comprises subjecting cotton fibres to an opening operation adapted to arrange the fibres in a loose, unfabricated condition, spraying the cotton fibres while in such loose, unfabricated condition with an atomized spray of a mildew inhibitor dissolved in a light mineral oil, the spraying being continued only until a quantity of solution between 0.1% and 2.0% by weight has been applied, and immediately thereafter subjecting the treated cotton fibres to a fabricating operation.

6. A method of manufacturing fabricated fibrous products which comprises providing a quantity of unfabricated fibres from which the products are to be made, arranging the unfabricated fibres in a loose, fluffy condition, applying to the fibres while in such loose, fluffy condition a fungicide in a quantity insufficient to require drying of the fibres, and immediately thereafter subjecting the treated fibres to a fabricating operation.

7. A method of making mildew resistant fabricated fibrous products which comprises arranging a quantity of fibers in a loose, fluffy, unfabricated condition, spraying the loose, fluffy, unfabricated fibers with an atomized stream of a fluid composition including a mildew inhibitor, the spraying being continued only long enough to apply a limited quantity of the composition insufficient to require drying of the fibres prior to their fabrication, and without substantial delay after such spraying, fabricating the treated fibres into a desired form.

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CERTIFICATE OF CORRECTION.

Patent No. 2,292,423. August 11, 1942.

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It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, first column, line 51, for "evently" read --evenly--; and second column, line 48, for "naphthenol" read --naphthol--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 27th day of October, A. D. 1942.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.