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UNITED STATES PATENT OFFICE.

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PROCESS OF DEGUMMING.

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This invention concerns a process for degumming natural silk in yarns or fabrics or other goods, whether consisting wholly thereof or containing it mixed or associated with fibres or yarns of any other material or materials. All such goods are hereinafter in the claims included in the term materials comprising natural silk. The invention is applicable with especial advantages to degumming natural silk in yarns or fabrics or other goods containing it mixed or associated with cellulose acetate yarns, filaments or fibres, and it will be described chiefly in this connection.

In degumming natural silk goods containing it mixed or associated with cellulose acetate, difficulty has been experienced owing to the detrimental effect of the usual degumming baths or treatment upon the lustre and quality of the cellulose acetate filaments, fibres or yarns present.

By the process of the present invention, this difficulty can be overcome and degumming of the natural silk in such goods can be satisfactorily effected without injury to the cellulose acetate fibres, filaments or yarns present therein.

The process of the invention can also be employed with advantage for degumming natural silk in yarns or fabrics consisting wholly thereof or consisting of natural silk mixed or associated with cotton, linen, wool, artificial silks of the cellulose type or other fibres or filaments than cellulose acetate.

According to the present invention the goods consisting of or containing the silk are impregnated with, that is to say treated with a strong aqueous solution of one or more sulpho-fatty acids or their alkali or ammonium salts, such for instance as are contained in the familiar sulphonated or sulphated oils of commerce represented by Turkey red oils, Monopol oils, oleines etc. to which have been preferably added one or more alkali silicates, carbonates, or borates, such as sodium silicate or sodium carbonate, soda ash or borax. These latter substances are all of the same type, having a moderate or weak alkaline reaction, and they are all hereinafter in the claims designated by the term inorganic alkaline salt. After standing for some time the goods are scoured with a solution of soap to which may be likewise added with advantage one or more alkali silicates, carbonates or borates.

In carrying out the invention the goods may be impregnated at a suitable temperature, for instance at about 75° C., with a strong aqueous solution of one or more of the aforesaid sulpho fatty acids or the alkali or ammonium salts, to which sodium silicate, sodium carbonate, soda ash, borax or other alkali silicates, carbonates or borates have been added, and after being left for some hours the goods may be scoured off in a soap bath containing sodium silicate, sodium carbonate, soda ash or other alkali silicates, carbonates or borates. If degumming is not as complete as desired, the scouring may be repeated.

The following example of the application of the invention for degumming natural silk in mixed yarns or fabrics consisting of natural silk yarns and cellulose acetate will serve to illustrate how the invention may be performed in practice, it being understood that this is given only by way of illustration and can be varied considerably.

The goods to be treated, for example woven fabric the warp of which is cellulose acetate yarn and the weft of real silk in the gum are impregnated in a suitable manner such as by means of a padding machine or mangle at about 75° C. with a commercial Turkey red oil of a strength represented by about 40–50% fatty acids to which sodium silicate to the extent of 10 grms. per litre of the oil has been added. The goods are well squeezed by the nip of the mangle until they contain about 40–50% of their weight of the alkaline oil preparation. They are then left piled or rolled up overnight and scoured off twice next day, each scouring being for about 1 hr. in a bath containing 5 grms. per litre soap and 0.3 grms. per litre sodium silicate at about 75° C. A satisfactory discharge of the silk gum is thus obtainable with no noticeable deleterious effect upon the cellulose acetate component in the goods.

What I claim and desire to secure by Letters Patent is:—

1. Process for degumming materials comprising natural silk, which consists in subjecting the goods to the action of a liquid comprising a strong aqueous solution of a sulpho-fatty acid salt of a monovalent inorganic base and subsequently scouring the goods with a solution comprising a soap.

2. Process for degumming materials comprising natural silk, which consists in sub-

jecting the goods to the action of a liquid comprising a strong aqueous solution of sodium salt of sulphoricinoleic acid and subsequently scouring the goods with a solution comprising a soap.

3. Process for degumming materials comprising natural silk and cellulose acetate which consists in subjecting the goods to the action of a liquid comprising a strong aqueous solution of a sulpho-fatty acid salt of a monovalent inorganic base and subsequently scouring the goods with a solution comprising a soap.

4. Process for degumming materials comprising natural silk and cellulose acetate which consists in subjecting the goods to the action of a liquid comprising a strong aqueous solution of sodium salt of sulphoricinoleic acid and subsequently scouring the goods with a solution comprising a soap.

5. Process for degumming materials comprising natural silk, which consists in subjecting the goods to the action of a liquid comprising an inorganic alkaline salt and a strong aqueous solution of a sulpho-fatty acid body, and subsequently scouring the goods with a solution comprising a soap and an inorganic alkaline salt.

6. Process for degumming materials comprising natural silk, which consists in subjecting the goods to the action of a liquid comprising an inorganic alkaline salt and a strong aqueous solution of a sulpho-fatty acid salt of a monovalent inorganic base, and subsequently scouring the goods with a solution comprising a soap and an inorganic alkaline salt.

7. Process for degumming materials comprising natural silk, which consists in subjecting the goods to the action of a liquid comprising an inorganic alkaline salt and a strong aqueous solution of sodium salt of sulphoricinoleic acid. and subsequently scouring the goods with a solution comprising a soap and an inorganic alkaline salt.

8. Process for degumming materials comprising natural silk and cellulose acetate, which consists in subjecting the goods to the action of a liquid comprising an inorganic alkaline salt and a strong aqueous solution of a sulpho-fatty acid body and subsequently scouring the goods with a solution comprising a soap and an inorganic alkaline salt.

9. Process for degumming materials comprising natural silk and cellulose acetate, which consists in subjecting the goods to the action of a liquid comprising an inorganic alkaline salt and a strong aqueous solution of a sulpho-fatty acid salt of a monovalent inorganic base, and subsequently scouring the goods with a solution comprising a soap and an inorganic alkaline salt.

10. Process for degumming materials comprising natural silk and cellulose acetate, which consists in subjecting the goods to the action of a liquid comprising an inorganic alkaline salt and a strong aqueous solution of sodium salt of sulphoricinoleic acid, and subsequently scouring the goods with a solution comprising a soap and an inorganic alkaline salt.

11. Process for degumming materials comprising natural silk and cellulose acetate, which consists in subjecting the goods to the action of a liquid comprising an alkali silicate and a strong aqueous solution of a sulpho-fatty acid body, and subsequently scouring the goods with a solution comprising a soap and alkali silicate.

12. Process for degumming materials comprising natural silk and cellulose acetate, which consists in subjecting the goods to the action of a liquid comprising an alkali silicate and a strong aqueous solution of a sulpho-fatty acid salt of a monovalent inorganic base, and subsequently scouring the goods with a solution comprising a soap and an alkali silicate.

13. Process for degumming materials comprising natural silk and cellulose acetate which consists in subjecting the goods to the action of a liquid comprising an alkali silicate and a strong aqueous solution of sodium salt of sulphoricinoleic acid and subsequently scouring the goods with a solution comprising a soap and an alkali silicate.

In testimony whereof I have hereunto subscribed my name.

GEORGE HOLLAND ELLIS.