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FIBRE DRAFTING COTS, APRONS AND THE LIKE

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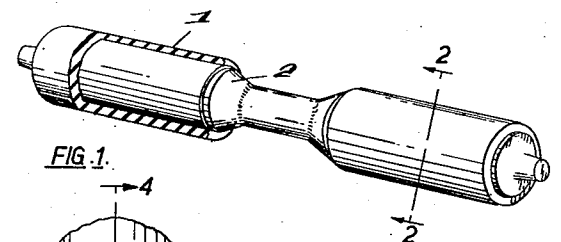


FIG. 1.

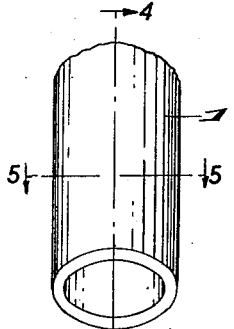


FIG. 3.

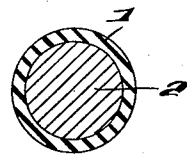


FIG. 2.

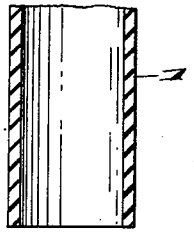


FIG. 4.

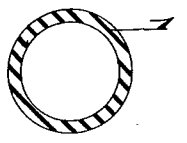
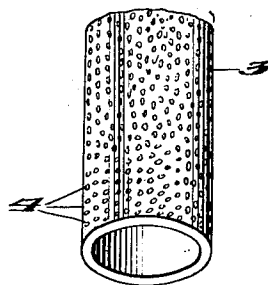


FIG. 5.

FIG. 6.



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1

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FIBRE DRAFTING COTS, APRONS AND THE LIKE

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Claims priority, application Great Britain December 15, 1952

8 Claims. (Cl. 19—143)

This invention relates to cots, aprons and the like used in fibre drafting mechanisms. It is already known to use various synthetic rubber-like materials for this purpose and to incorporate in them fillers or improvers which render them less liable to cause lapping of the textile fibres, or to suffer from what is called eyebrow formation with these fibres. Among the synthetic rubber-like materials recommended for this purpose have been chloroprene and butadiene-acrylonitrile copolymers, and among the fillers or improvers recommended have been animal proteins such as glue, gelatin, casein and albumen.

I have now found that particularly favourable results are secured if the synthetic rubber is mixed with a water-soluble salt of alginic acid, which is readily obtainable and is easily mixed with the synthetic rubber in standard types of mixing machines. A comparatively small addition of sodium alginate or other water-soluble salt of alginic acid to the synthetic rubber selected produces a marked improvement in its resistance to fibre lapping on roller cots, aprons and the like having a surface layer of the mixture. At the same time, the synthetic rubber retains its advantages in regard to wear resistance, absence of attack by oil and so forth.

Other fillers such as cork or whiting may be added for their usual purposes, but it is the alginate which is of particular importance from the point of view of lapping prevention. The amount of alginate added to the synthetic rubber may, with advantage, be of the order of 20% to 25% of the weight of the synthetic rubber compound, although larger proportions may be used, or smaller proportions down to about 10% if such a high resistance to lapping is not required as is obtainable with the larger proportions. The alginate may be added as a powder to the rubber mix, or it can be added as an aqueous or other solution, in which case the solvent is evaporated during the mixing operation, leaving the alginate very finely distributed in the rubber-like compound. When the alginate is introduced in solution form, it improves the quality of the cots and aprons as regards the repelling of oil.

Sodium alginate is readily soluble in water and for some purposes, particularly to prevent eyebrow formation, it is desirable that the surface of the cot or apron should be honeycombed or pitted, or at least somewhat irregular. This result can readily be attained by immersing the cot or apron for a short time in steam or a solvent liquid so as to dissolve out particles of the alginate near the surface while leaving sufficient of the alginate in the body of the cot or apron to attain its other intended purposes.

Another factor in the normal uses of cots is the prevention or limitation of condensation of moisture which is liable to occur under certain atmospheric conditions and interferes with the effective drawing of the fibres. The fact that the sodium alginate or other water-soluble salt of alginic acid readily absorbs moisture enables it to take up condensed moisture and to prevent such mois-

2

ture from affecting the drawing or other manipulation of the fibres in contact with it. Although cots have been referred to above, it is clearly to be understood that the same factors arise with aprons and other drafting surfaces for textile fibres.

Another difficulty which arises in the operation of cots or aprons formed of synthetic rubber, when used with textile fibres, particularly cotton, is that foreign matter associated with the fibres tends to collect on the cots and aprons, resulting in time in causing fibres to adhere so that lapping results. An advantage of the use of alginates admixed with synthetic rubber material, is that the foreign matter which tends to collect on the active surface is thrown off where it comes in contact with the alginate particles in the presence of moisture. Although it is possible in many cases to clean off such foreign matter by washing operations, buffing and so forth, it is an advantage to be able to use a material which renders such additional operations largely unnecessary.

Although sodium alginate has been referred to throughout as the preferred form of alginate for use because it is readily available, I have obtained satisfactory results with the use of other water-soluble salts of alginic acid, such as ammonium alginate, or alginates of organic bases, e. g. triethanolamine alginate.

In the drawing:

Fig. 1 is a perspective of a top spinning roller or cot with the covering broken away at one end;

Fig. 2 is a section along line 2—2 of Figure 1 looking in the direction of the arrows;

Fig. 3 is a perspective of one end of the spinning cot sleeve;

Fig. 4 is a section on line 4—4 of Fig. 3 looking in the direction of the arrows;

Fig. 5 is a section on line 5—5 of Fig. 3 looking in the direction of the arrows; and

Fig. 6 is a perspective of one end of a modified form of spinning cot sleeve according to the invention which is provided with a pitted surface.

In the drawing, 1 is the synthetic rubber cot sleeve having a water soluble salt of alginic acid incorporated therein and 2 is the core which is usually composed of metal.

In the modification of the cot sleeve shown in Fig. 6, the surface of cot sleeve 3 has been provided with pits 4 by immersing the sleeve for a short time in steam or a solvent liquid so as to dissolve out particles of the alginate near the surface while leaving sufficient amounts of the alginate in the body of the cot sleeve to attain its other intended purposes.

I claim:

1. In a machine for drafting textile fibres, a fibre drafting element having a fibre contacting surface composed of a synthetic rubber having incorporated therein a water-soluble salt of alginic acid.

2. In a machine for drafting textile fibres, a fibre drafting element as claimed in claim 1, in which the synthetic rubber is chloroprene.

3. In a machine for drafting textile fibres, a fibre drafting element as claimed in claim 1, in which the synthetic rubber is butadiene-acrylonitrile copolymer.

4. In a machine for drafting textile fibres, a fibre drafting element as claimed in claim 1 in which the water-soluble salt of an alginic acid is selected from the group consisting of sodium alginate, ammonium alginate and triethanolamine alginate.

5. In a machine for drafting textile fibres, a fibre drafting element as claimed in claim 1 and having a lightly pitted surface.

6. In a machine for drafting textile fibres, a fibre drafting element having a fibre contacting surface com-

posed of a synthetic rubber having about 20 to 25% of a water-soluble salt of alginic acid incorporated therein.

7. A process for producing a surface covering for a drafting roller, in which process a covering element composed of synthetic rubber having incorporated therein a water-soluble salt of alginic acid is subjected to treatment with a solvent for said salt to dissolve out particles of said salt at the surface of such covering element and to produce a pitted surface thereon. 5

8. In the production of a fibre contacting element to cover at least one roller in a textile fibre drafting machine, the steps comprising preparing a synthetic rubber mix, incorporating a solution of a water-soluble salt of alginic acid in a solvent in said mix, removing the solvent and forming said rubber mix into said fibre contacting surface. 10 15

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