Aug. 26, 1947. E. L. LUACES 2,426,227

SPINNING COT

Filed July 31, 1944

FIG. 1.

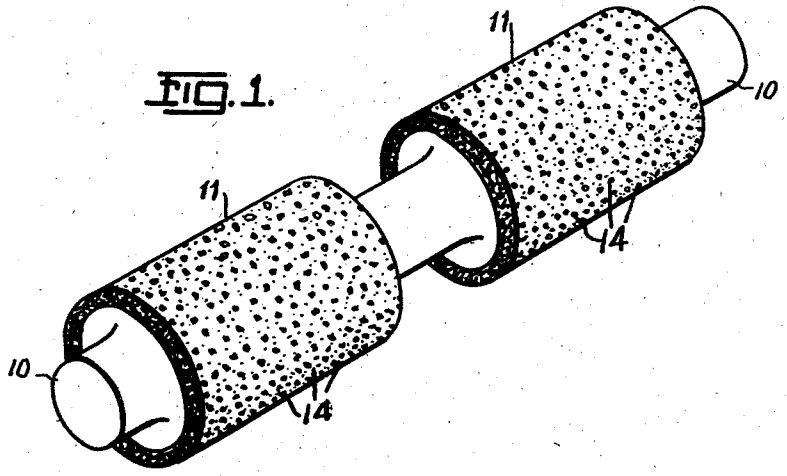
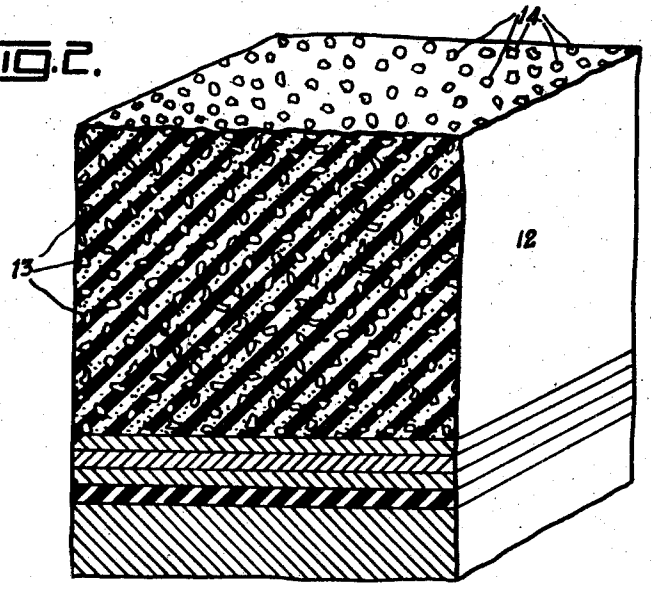


FIG. 2.



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SPINNING COT

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3 Claims. (Cl. 19—143)

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This invention relates to textile machine units, and more particularly to cots for spinning rolls.

In the past, textile cots were made of leather. However, leather cots proved unsatisfactory for use on modern machines which work at relatively high speeds, since, due to the smoothness of their surface, they did not provide sufficient gripping action. The consequence of this lack of gripping action is a phenomenon which, in the art, is called eyebrowing. Eyebrowing occurs if the roll covers are too smooth and the grippage insufficient to pull the short fibers back under the clearer boards. In such a case the lint fibers amass along the front of the cot to a so-called curtain and are loosened there by the overhead cleaners and taken into the yarn where they form slugs. Only after long use did leather cots become rough enough to be free from eyebrowing; however, by then the cots had lost the greatest part of their strength, and soon after this they had to be replaced by new leather cots.

More recently use has been made of cots made of synthetic materials which show a considerably longer lifetime than leather cots. However, these synthetic cots, unless made from selected materials and properly processed, have the drawback of eyebrowing even to a greater degree than the new leather cots.

The principal object of the present invention is to provide a spinning cot with a rough surface the production of which does not require a special step in manufacture, but which is inherently formed in manufacture and remains during the life of the cot. Such a cot exhibits good drafting qualities, produces yarns of uniform appearance and strength, possesses good durability, and does not cause eyebrowing.

The spinning cot of the present invention has a roughened surface caused by a plurality of cavities distributed all over the working surface which continuously form with the same speed as the surface wears off.

The invention will be more fully understood from the following description taken in connection with the accompanying drawing, in which:

Fig. 1 represents a spinning roll covered with a cot; and

Fig. 2 represents an enlarged portion of the cot body showing its pockmarked surface and admixed material thoroughly distributed throughout the body thereof.

In Fig. 1, 10 represents a spinning roll, and 11 is a cot mounted thereon.

As shown in Fig. 2, the cot body 12 is made of rubber composition having fibrous material 13 incorporated therein. The fibrous material 13 may be advantageously ground or shredded cellulose material, more particularly cellulose sponge.

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The cots of this invention are made by methods common to the art, using any kind of a cot material of the desired properties but having fibrous material such as ground or shredded cellulose sponge substantially uniformly distributed therethrough. When such cots are used in the spinning process, the frictional effect between the cot and the fibers being drafted causes the ends of the fibrous particles at the working surface of the cot to break off. In substantially all cases the fibrous particles fall off while still at some distance below the surface, and thus leave pits or cavities 14 in the surface which give to the cot a roughened surface. One of the advantages of the cots made according to this invention is that as the surface of the cot wears down, new fibrous particles appear at the surface and are broken or fall away in the same way in which the original fibrous particles at the surface of the new cot were broken and fell off, thus continuously forming new cavities and maintaining the roughness of the cot.

The particles, inasmuch as they are cellulose sponge, each have a series of cells which as presented to the work increase the gripping action of the cot. This occurs before the cot has been worn down to the point where particles fall off to form new cavities in the places where the particles were located. It will be understood that the particles do not fall out until the cot is worn down and that during this time the particles present a series of cells to the work thereby increasing the gripping action of the cot.

Synthetic rubbers and also other synthetics of the desired qualities may be used as the basic ingredient of the cot material. It has been found that the Perbunans, which are acrylic nitrile and butadiene copolymers give the most satisfactory results. As fibrous materials, ground or shredded cellulose sponge proves eminently satisfactory. A quantity of from 30 to 70% of cellulose sponge with regard to the weight of the cot body was found to be the preferred range.

Cots made as described above are of improved durability, their efficiency not being impaired by the length of their use. They produce yarns of uniform appearance from the beginning to the end of their service life, and do not cause eyebrowing.

Two theories might help to explain the increased efficiency of cots made according to the invention. One is that the cavities may act as

suction cups and thus increase the gripping action of the cot. The other is that the static electricity, which is usually generated by rubber articles subjected to friction, is continuously discharged from the many edges and corners of the cavities forming the rough character of the cot surface. It also may be that a coaction of these two or even other unknown phenomena is present. These theories are only of explanatory character, and are not intended to limit the scope of the invention.

It will be understood that while there have been described herein certain specific embodiments of this invention, it is not intended thereby to have the invention limited to or circumscribed by the specific details of procedure, materials, arrangement of parts, and conditions set forth in the specification or illustrated in the drawing, in view of the fact that this invention may be modified according to individual preference and conditions without departing from the spirit of this disclosure and the scope of the appended claims.

I claim:

1. As a new article of manufacture, a spinning cot comprising a body of acrylic nitrile and butadiene copolymers having dispersed therethrough particles of cellulose sponge in spaced independent bodies incorporated in the copolymer materials, said bodies representing from 30 to 70% of the spinning cot, said cellulose sponge particles each having cavities dispersed through their bodies whereby to present a series of cavities to the work, said bodies being adjacent the surface of said cot and adapted to fall off as the said surface wears off in use, whereby continuously to maintain a roughened surface exhibiting high grippage and non-eyebrowing characteristics, said cot having low static build-up.

2. As a new article of manufacture, a spinning cot comprising a non-porous body of acrylic nitrile and butadiene copolymers having dispersed therethrough particles of cellulose sponge in spaced independent bodies incorporated in the copolymer materials, said bodies representing from 30 to 70% of the spinning cot, said cellulose sponge particles each having cavities dispersed through their bodies whereby to present a series of cavities to the work, said bodies being adjacent the surface of said cot and adapted to fall off as the said surface wears off in use, whereby continuously to maintain a roughened surface exhibiting high grippage and non-eyebrowing characteristics, said cot having a low static build-up.

3. As a new article of manufacture, a spinning cot comprising a non-porous non-perforated body of acrylic nitrile and butadiene copolymers having dispersed therethrough particles of cellulose sponge in spaced independent bodies incorporated in the copolymer materials, said bodies representing from 30 to 70% of the spinning cot, said cellulose sponge particles each having cavities dispersed through their bodies whereby to present a series of cavities to the work, said bodies being adjacent the surface of said cot and adapted to fall off as the said surface wears off in use, whereby continuously to maintain a roughened surface exhibiting high grippage and non-eyebrowing characteristics, said cot having a low static build-up.

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