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SPINNING COT FOR TEXTILE FIBER PROCESSING

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FIG. 1.

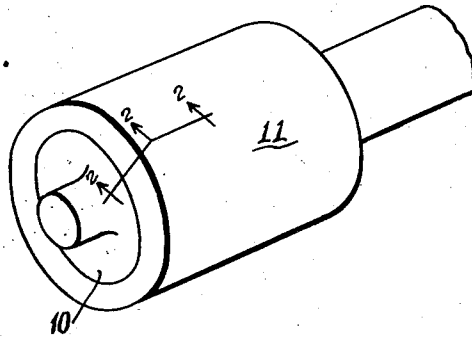


FIG. 4.

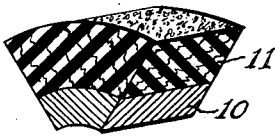


FIG. 2.

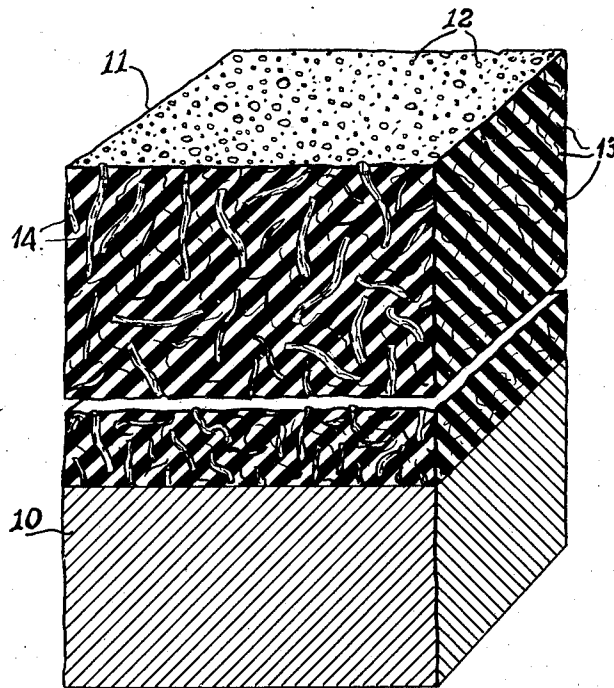


FIG. 3.



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SPINNING COT FOR TEXTILE FIBER
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6 Claims. (Cl. 19—143)

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 life 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 present invention refers to spinning cots which are free from these disadvantages and which are of good durability and do not cause eyebrowing.

Another object of the invention is to provide a spinning cot with good drafting properties.

Still another object of the invention is to provide a spinning cot which produces yarns of uniform appearance and strength.

Still another object of the 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.

A further object of the invention is to provide a spinning cot with a roughened surface caused by a plurality of cavities distributed all over the working surface and which continuously form 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.

Fig. 2 is a cross-sectional view taken along the line 2—2 of Fig. 1; and,

Fig. 3 illustrates an enlarged portion of the cot showing one of the surface cavities formed in the practice of the present invention.

Fig. 4 is an enlarged portion of a modified cot construction in which substantially all of the fibers are pointed toward the peripheral working surface. This view is taken, looking partly at the end and partly at the side of the cot, with the cut-away portion removed.

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

The cot 11 shown in the drawing is made of rubber composition having fibrous material 13 incorporated therein. The fibers 14 which are located near the working surface of the cot have been broken away at some distance below the surface, thus leaving cavities or voids 12 which give the surface its rough character required for satisfactory service.

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 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 fibers at the working surface of the cot to break off. In substantially all cases the fibers break off at some distance below the surface and thus leave pits or cavities in the surface which give it 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 fibers appear at the surface and are broken away in the same way the original surface fibers were broken off, thus continuously forming new cavities and maintaining the roughness of the cot.

Natural as well as synthetic rubbers, and also other synthetics of the desired qualities may be used as the basic ingredient of the cot material. I have found that the Perbumans, which are acrylic nitrile and butadiene copolymers give the most satisfactory results. As fibrous materials cotton, rayon, glass, wool, bristles, hair and others may be used with satisfaction.

I have found that the material generally known under the trade name "Stiflex" is especially well suited for the cots of this invention. "Stiflex" is a rubber composition reinforced with fine textile fibers which lie substantially parallel to each other when the composition is in flat or sheet form. Where used in the practice of this invention the composition layer is rolled around an arbor and the ends secured together in the well-

known manner so that the fibers of the "Stiflex" run from the core to the periphery of the roll. The fibers retain their parallel arrangement when viewed from the side of the cot but align themselves radially as seen from the end of the cot, this general arrangement being shown in Figure 4. The fiber ends therefore extend outwardly as the cot wears down and are broken off as hereinbefore explained.

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 eye-browning.

Two theories might help to explain the increased efficiency of cots made according to the invention. One is that the cavities may act as kind of suction cups and thus increase the gripping action of the cot. The other is that the static electricity, which usually forms on 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 intended to be 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 certain specific embodiments of my invention, it is not intended thereby to have this 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 rubber composition throughout which fibers extend in a substantially radial direction as viewed from the end of the cot whereby the ends of the fibers are pointed toward the working surface of the cot, said cot having a roughened working surface which does not smooth out during use and which automatically regenerates a plurality of cavities distributed all over said surface as the result of the fibers breaking away below the surface when exposed to friction and leaving cavities formerly occupied by the fibers.

2. As a new article of manufacture, a spinning cot comprising a body of rubber-like composition throughout which fibers extend in a substantially radial direction as viewed from the end of the cot whereby the ends of the fibers are pointed toward the working surface of the cot, said cot having a roughened working surface which does not smooth out during use and which automati-

cally regenerates a plurality of cavities distributed all over said surface as the result of the fibers breaking away below the surface when exposed to friction and leaving cavities formerly occupied by the fibers.

3. As a new article of manufacture, a spinning cot comprising a body of acrylic nitrile and butadiene copolymers composition throughout which fibers extend in a substantially radial direction as viewed from the end of the cot whereby the ends of the fibers are pointed toward the working surface of the cot, said cot having a roughened working surface which does not smooth out during use and which automatically regenerates a plurality of cavities distributed all over said surface as the result of the fibers breaking away below the surface when exposed to friction and leaving cavities formerly occupied by the fibers.

4. As a new article of manufacture, a spinning cot comprising a body of acrylic nitrile and butadiene copolymers throughout which textile fibers extend in a substantially radial direction as viewed from the end of the cot whereby the ends of said textile fibers are pointed toward the working surface of the cot, said cot having a roughened working surface which does not smooth out during use and which automatically regenerates a plurality of cavities distributed all over said surface as the result of the textile fibers breaking away below the surface when exposed to friction and leaving cavities formerly occupied by said textile fibers.

5. As a new article of manufacture, a spinning cot comprising a body of acrylic nitrile and butadiene copolymers throughout which fibers extend in a substantially radial direction as viewed from the end of the cot whereby the ends of at least some of said fibers reach the working surface of the cot, said cot having a roughened working surface which does not smooth out during use and which automatically regenerates a plurality of cavities distributed all over said surface as the result of the fibers breaking away below the surface when exposed to friction and leaving cavities formerly occupied by the fibers.

6. As a new article of manufacture, a spinning cot comprising a body of acrylic nitrile and butadiene copolymers throughout which fibers extend in a substantially radial direction as viewed from the end of the cot and parallelly as viewed in the longitudinal cross-section of the cot whereby the ends of at least some of said fibers reach the working surface of the cot, said cot having a roughened working surface which does not smooth out during use and which automatically regenerates a plurality of cavities distributed all over said surface as the result of the fibers breaking away below the surface when exposed to friction and leaving cavities formerly occupied by the fibers.

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