United States Patent [19]

Bowling et al.

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[45] **Jan. 15, 1974**

[54] **TEXTILE WORKING UNIT**

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[22] Filed: **May 20, 1971**

[21] Appl. No.: **145,357**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 876,410, Nov. 13, 1969, abandoned.

[52] **U.S. Cl.** **29/132**

[51] **Int. Cl.** **B21b 31/08**

[58] **Field of Search** 29/130, 129.5, 132, 29/128

[56] **References Cited**

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2,369,635	2/1945	Bacon	29/132 X
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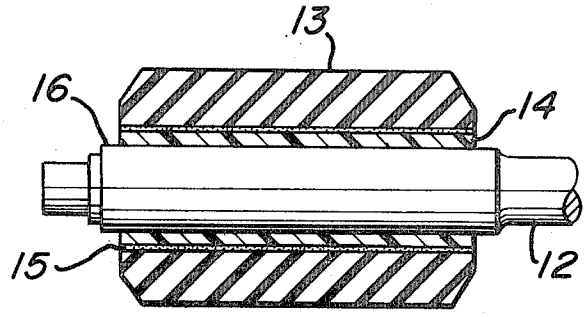
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[57] **ABSTRACT**

A textile working unit having a central shaft with raised bosses having fiber drafting cots adapted for mounting on the bosses. The cot has a rigid core and an outer elastomeric working surface, which may be bonded to the core by means of an adhesive.

5 Claims, 4 Drawing Figures



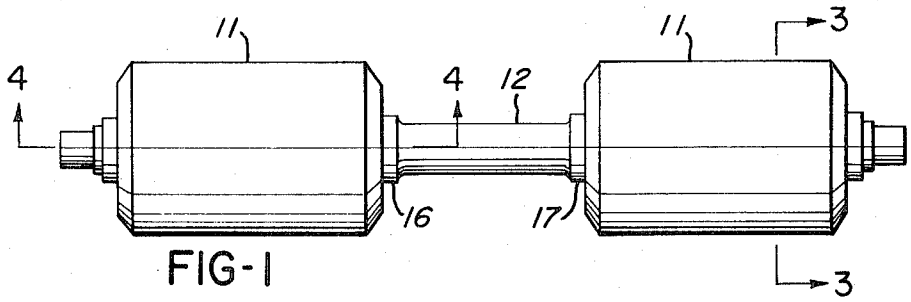


FIG-1

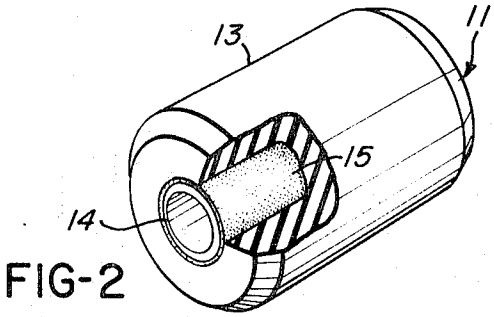


FIG-2

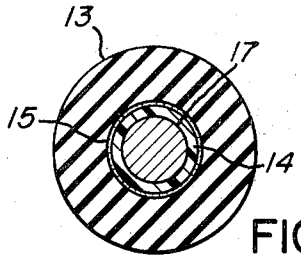


FIG-3

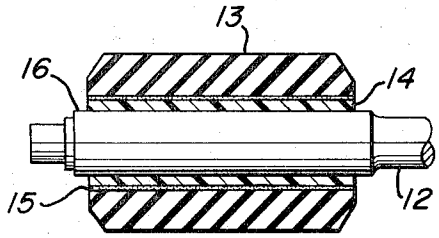


FIG-4

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TEXTILE WORKING UNIT

RELATED APPLICATION

This application is a continuation-in-part of application Ser. No. 876,410, filed Nov. 13, 1969, now abandoned.

BACKGROUND OF THE INVENTION

This invention relates to a textile working unit which is used in the treatment of textile yarns. The invention more particularly relates to a unit formed of a spinning roll on which is mounted a cot having a central cylindrical core and an outer working surface of elastomeric material. Cots of this type are normally used in spinning, carding, amd drawing of textiles, but it should be understood that the same structure may also be utilized in other types of textile machinery as well.

A conventional textile cot simply consists of a rubber cylindrical member which is bonded directly to the spinning roll by means of an adhesive. One example of this type of unit is found in U.S. Pat. No. 2,304,656, issued to Rockoff. There are a number of drawbacks in this design, however, which the present invention overcomes.

SUMMARY OF THE INVENTION

The present invention provides an improved cot which does not require bonding the rubber covering directly to the roll. Instead, the cover is bonded to a hard, rigid core, and this combination is assembled directly on the roll. This has obvious advantages in the mill since it is only necessary for the operator to place the cot on the roll without the bother of applying an adhesive. Further, when using a cot of the type indicated in the Rockoff patent, it is necessary to build stretch factors into the cot, thus creating limitations in the type of rubber that can be used. By bonding the rubber cover stock to the hard, rigid base, it is unnecessary to prestretch the rubber material to any significant extent, and this permits the use of rubber compounds which have highly desirable properties; namely, wear resistance and low cost. Further, certain machines at the present time require cots having cord reinforcements in order to obtain needed characteristics. It has been found that the present invention eliminates the cord reinforcement.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view of two of the novel cots placed in position on the operating roll.

FIG. 2 is a perspective view of the novel cot, partially broken away to show additional details.

FIG. 3 is a sectional view taken along line 3—3 of FIG. 1.

FIG. 4 is a sectional view taken along the line 4—4 of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, FIG. 1 illustrates a metal roll 12 which is conventionally used as a spinning roll. The roll 12 is formed in the shape of a central shaft and has two raised bosses or sleeves 16 and 17 upon which two cots are placed. The novel cot 11 consists of a central core 14 upon which is placed an outer working cover 13 which is secured to the core by means of adhesive 15. It is possible to omit the adhesive in certain of the designs.

The core 14 is preferably made of a hard, rigid tube of a thermo-plastic material such as ABS (acrylonitrile-butadiene-styrene), polypropylene, nylon, or polycarbonate, having a hardness of about Rockwell R 95. The material has a flexural modulus ranging from 100,000 to 350,000 p.s.i., the preferred range being 200,000 to 250,000 p.s.i. While these plastic materials are preferred, it is also possible to use hard rubber, thermosetting plastics such as phenol formaldehyde, or other materials which have similar physical characteristics. The inside diameter of the core is slightly smaller than the diameter of the bosses 16 and 17, in order to stretch slightly and fit more securely. The inside core diameter is 0.005 to 0.030 inch smaller than the boss diameter, but preferably about 0.015 inch.

As indicated above, the outer surface of the core may be coated with a suitable adhesive, although it is possible to form the product without adhesive. Uncured rubber stock of the desired compound is formed on an extruder to form a rubber member 13 which is placed over the core, preferably by blowing it on in a manner well known in the rubber industry. The entire assembly is wrapped with a fabric strip and cured approximately 90 minutes at 300°F., then cooled to room temperature. The outer surface may then be ground to the desired outside diameter. The entire assembly may either be formed in the approximate length shown, or longer lengths may be assembled, and the finished product cut to the desired length. In lieu of blowing on a tube other standard processes may be used, such as laminating a number of layers of sheet stock on the core.

The assembly just described provides a cot which is sufficiently rigid to grip the boss of the roll without transmitting stresses from the roll into the working surface. Since the installation may be made without the use of adhesive, the procedure is very simple.

While the above embodiment is preferred, it should be noted that other variations fall within the scope of the invention.

We claim:

1. In a textile working unit comprising a central shaft having at least one boss, a fiber drafting cot adapted for mounting on said boss, said cot comprising a rigid core formed of a thin-walled plastic tube with a constant cross section, and an elastomeric outer working surface having a comparatively thick wall and a constant outer diameter, said core having an inside diameter which is 0.005 inch to 0.030 inch smaller than the outside diameter of said boss when said cot is not mounted.

2. The unit of claim 1 in which said plastic is selected from the group consisting of nylon, ABS, polypropylene, and polycarbonate.

3. The unit of claim 1 in which said core is made of phenol formaldehyde.

4. The unit of claim 1 in which said core has a flexural modulus of 100,000 to 350,000 p.s.i.

5. The unit of claim 1 including an adhesive between said core and said working surface.

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