July 20, 1943. S. W. ALDERFER 2,324,989

ELASTIC NOVELTY YARN

Filed Dec. 4, 1940

Fig. 1.

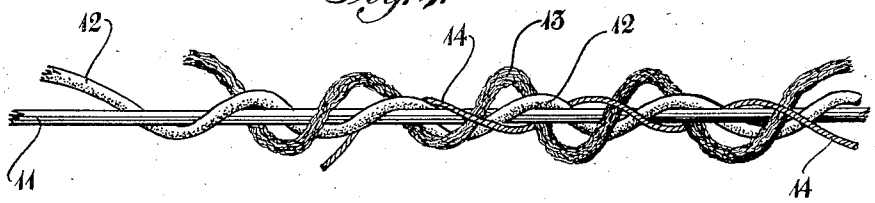
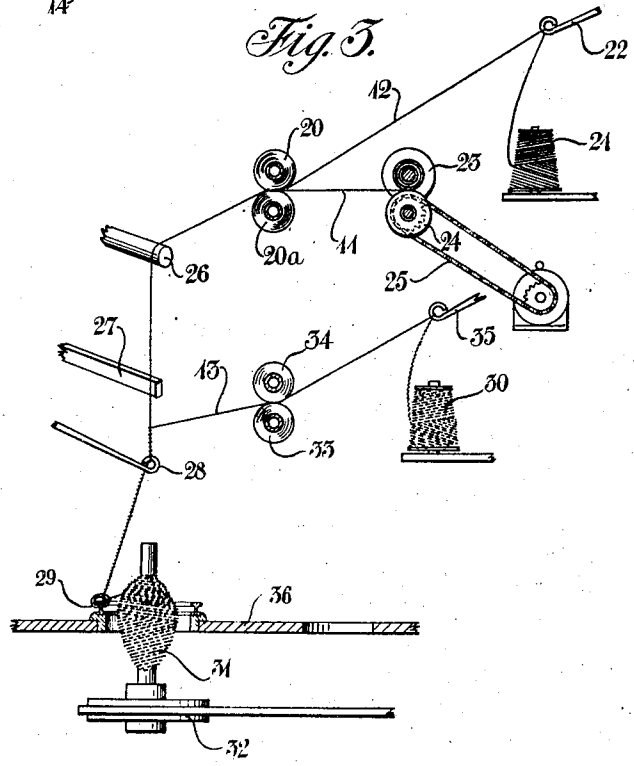


Fig. 2.



Fig. 3.



INVENTOR

Sterling W. Alderfer

BY Ely & Frye

ATTORNEYS

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ELASTIC NOVELTY YARN

Sterling W. Alderfer, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

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2 Claims. (Cl. 57—152)

This invention relates to the textile art, especially to an elastic novelty yarn which is formed of separate elastic and inelastic threads, yarns, cords, or strands.

A general object of the present invention is to provide a novel type of elastic yarn, which has desirable properties, and a method of making same.

A further object of the invention is to provide an elastic novelty yarn which produces unusual effects when fabricated to article form.

The foregoing and other objects will be manifest from the following specification which is described with particular reference to the accompanying drawing of which:

Figure 1 is an elevation of a slightly tensioned elastic yarn embodying the invention, which yarn is stranded out at one end to show the components thereof;

Figure 2 is an elevation of the yarn of Figure 1 when it is relaxed; and

Figure 3 is a diagrammatic elevation of apparatus for forming the yarn of Figure 1.

Referring in detail to the drawing, an elastic yarn 10 is shown, which yarn includes a rubber thread 11 which is twisted together with a core thread 12. A yarn 13 is loosely wrapped around the two threads 11 and 12 as a unit in the same direction as the twist of the threads 11 and 12. Note that the convolutions of the yarn 13 around the elastic thread are drawn into substantially abutting relation when the yarn 10 is relaxed as the yarn 13 is wound upon the threads 11 and 12 when the rubber thread 11 is tensioned. A binder thread 14 is wrapped around the unit formed of the elastic thread 11, core thread 12 and yarn 13 to retain the yarn and thread together and form a finished yarn therefrom, the binder thread being wound in the opposite direction to the yarn 13, as shown.

The binder thread 14, the core thread 12, and the yarn 13 all may be made from cotton, wool or other suitable materials. Note that loops and/or convolutions of the yarn 13 extend radially outwardly of the elastic yarn 10 between the convolutions of the binder thread 14 and that the yarn 10 may be tensioned any desired amount, or else completely relaxed to bring such loops or convolutions of the yarn 13 into the desired relationship and vary the appearance of the yarn. In all events, the yarn 10 presents an attractive appearance and is adapted to be fabricated in either tensioned or relaxed form. Obviously the elasticity of the yarn adapts it for new and desirable uses over ordinary novelty yarns.

The yarn 10 may be made upon apparatus including rollers 20 and 20a between which the core thread 12 and elastic thread 11 are drawn, the elastic thread being held under tension as the yarn 10 is produced. The core thread 12 is wound upon a bobbin 21 and drawn therefrom over a guide 22 while the elastic thread 11 is carried by a flanged roll 23 which is supported on a roll 24 driven by a chain 25. The outer surface of the thread 11 carried by the roll 23 rests directly upon the roll 24 so that, by driving the roll 24 at a uniform speed, the elastic thread is unwrapped from the roll 23 at a uniform rate. The elastic thread 11 should be placed upon the roll 23 under uniform tension to aid in removing it therefrom at a uniform rate.

The elastic thread and core thread are arranged in parallel and pass over a guide roll 26 after passing through the rolls 20 and 20a and then over a faller bar 27. The yarn 13, carried on a bobbin 30, is fed in to the elastic thread and core thread faster than the threads are drawn through the rolls 20 and 20a and at an appreciably angle to their axes to facilitate wrapping it therearound. The yarn 13 is drawn from the bobbin 30 over a guide 35 by driven rolls 33 and 34. The composite yarn passes through a guide 28, a ring traveler 29 and then is wrapped around a bobbin 31. The elastic thread and the core thread are twisted together and the yarn 13 is twisted therearound by rotating the bobbin through a driven pulley 32. The ring traveler 29 is slidably mounted for rotation on a vertically movable bar 36 so that the ring traveler can move up and down with relation to the bobbin 31 to aid in distributing the yarn thereover.

The yarn 10 is completed by passing the unit formed from the core thread 12, elastic thread 11 and yarn 13 through the apparatus a second time. In the second step of forming the yarn 10, the bobbin 31 is substituted for the bobbin 21 and the yarn thereon is led therefrom through the rolls 20 and 20a and over the guide 26 and faller bar 27, after which the binder thread 14 is led to the yarn in a manner similar to that in which the yarn 13 is fed. The binder thread 14 is twisted onto the unit formed by the elastic thread, core thread and yarn by leading the composite yarn through the guide 28 and ring traveler 29 to a rotating bobbin substituted for the bobbin 31. Of course, the bobbin in this case will be driven in the opposite direction from the bobbin 31 to wind the binder thread oppositely to the yarn 13.

It will be appreciated that the yarn 10 may be

produced with the elastic thread 11 under any desired tension. Usually both the core thread 12 and the binder thread 14 are wrapped around the elastic thread 11 when it is under substantially the same tension and about equal lengths of the binder and the core thread are so positioned whereby both threads limit the extensibility of the yarn 10.

It will be seen that novel and unusual effects can be produced by coloring any of the threads 12 or 14, or, especially, the yarn 13, which coloring may vary in different sections of the thread or yarn colored.

In some cases, it may be desirable to feed the unit formed of the elastic thread 11, core thread 12, and yarn 13 to the rolls 20 and 20a by a positive feed when completing the yarn 10. That is, the bobbin 31 could be provided with end flanges or other means so that a substantially uniform diameter thread deposit is formed thereon and the bobbin then could be placed on the roll 24 which would positively feed the thread to the twisting apparatus at a constant rate. In all events, the thread wrapped upon the bobbin 31 is at uniform tension which aids in removing the thread therefrom uniformly.

While one embodiment of the invention has been completely illustrated and described herein, it will be apparent that modification thereof may be made without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. An elastic novelty yarn comprising an elastic thread, a core thread wrapped around said elastic thread to form a unit which lies along the axis of the novelty yarn when it is tensioned, a yarn loosely wrapped around said unit in a direction similar to the twist thereof to form a plurality of loose closely adjacent convolutions therearound when the novelty yarn is relaxed, and a binder thread wrapped around the unit formed of said elastic thread and said yarn in the direction opposite to the direction in which said yarn is wrapped around said elastic thread to form elastic novelty yarn.

2. An elastic novelty yarn comprising an elastic thread lying along the axis of the novelty yarn, a yarn loosely wrapped around said elastic thread to form a plurality of loose closely adjacent convolutions therearound when the novelty yarn is relaxed, and a binder thread wrapped around the unit formed of said elastic thread and said yarn in the direction opposite to the direction in which said yarn is wrapped around said elastic core thread to form elastic novelty yarn.

STERLING W. ALDERFER.