

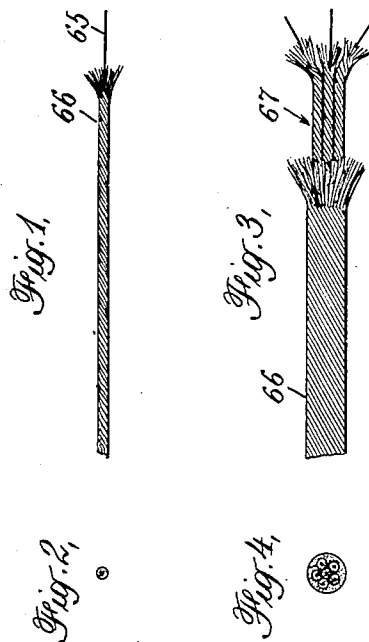
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1,574,004

H. RYDER

MULTIPLE WIRE FIBROUS YARN

Filed Nov. 29, 1922



INVENTOR

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BY

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UNITED STATES PATENT OFFICE.

HENRY RYDER, OF NEW YORK, N. Y., ASSIGNOR TO WIRE FIBROUS PRODUCTS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

MULTIPLE-WIRE FIBROUS YARN.

Application filed November 29, 1922. Serial No. 603,993.

To all whom it may concern:

Be it known that I, HENRY RYDER, a citizen of the United States, residing at No. 371 West 46th Street, New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Multiple-Wire Fibrous Yarns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a multiple wire fibrous yarn or rope structure and to the method of making the same. The multiple yarn which forms the subject matter of this application comprises a combination of wires and fibres arranged in such a manner that the wires and fibres may each carry a part of the load which may be applied to the yarn as a whole. The improved yarn consists of a core and a plurality of fibres spun around the core in such a manner that the fibres lie parallel with each other spirally around the core. The core consists of a plurality of single wire fibrous yarns of the type disclosed in my prior Patent No. 831,108. These single yarns, forming the core, lie parallel with each other, and the multiple yarn is made in such a manner that there is no torsion or twist in the several single yarns forming the core.

It is an established fact that if a wire or yarn of any description is grasped firmly and unwound from a spool by pulling the wire or yarn straight away from the spool the wire or yarn is subjected to considerable torsion. The direction of this torsion depends upon whether the wire or yarn is taken from the underside of the spool or from the top.

In order to relieve the wire or yarn from this torsion, it is necessary to either turn the spool from which the wire or yarn is taken, or to turn the wire itself. In either case this turning should be in such a direction that it tends to take the torsion or twist out of the wire or yarn.

Accordingly, one of the principal objects of this invention is to provide a method whereby yarns may be fed from a plurality of spools in such a manner that this torsion which normally develops when the yarn is drawn from the spool, is completely neutralized or eliminated. This is accom-

plished by rotating the spools about their transverse axes in such directions that the torsion or twist is taken out of the yarns, which are being drawn or pulled off of the spools.

The improved multiple wire fibrous yarn may be made by means of the spinning machine disclosed in my copending application, Serial No. 603,992, filed Nov. 29, 1922.

The present invention may be best understood by referring to the following detailed description which is to be considered in conjunction with the accompanying drawings, in which:

Fig. 1 is an elevation showing a piece of single wire fibrous yarn as disclosed in my prior Patent No. 831,108;

Fig. 2 is a transverse section of the yarn shown in Fig. 1;

Fig. 3 is an elevation of a piece of multiple wire fibrous yarn showing the construction thereof;

Fig. 4 is a transverse section of the yarn shown in Fig. 3.

My improved multiple yarn or rope structure can be made by means of the spinning machine disclosed in my copending application above mentioned. In this machine the spool holder rotates in the same direction and with the same speed that the flyer rotates. The yarns passing from the several spools are brought together to form a substantially compact core which passes along above a conveyor. Fibers are spun around this core so that they lie parallel to each other spirally around the core in the form of a homogeneous layer. In order to prevent torsion from being developed in the yarns as they are being drawn off from the spools, each of the spools is rotated about a transverse axis in the direction opposite to that in which the spool holder rotates.

From the above description it should be apparent that the method of making multiple wire fibrous yarn comprises, in general, supplying a plurality of single wire fibrous yarns to the nipper of the spinning machine in such a manner that they lie parallel to each other, and also so that there is no torsion or twist in the individual single yarns, and then spinning fibres around this core of single yarns in such a manner that the fibres lie parallel to each other spirally around the core. The finished product comprises multiple wire fibrous

yarn in which the wires and fibres may carry an equal stress under load. The wires and fibres are combined in such a manner that there is no torsion or initial stress in the single yarns forming the core. The fibres around the wires serve to cushion them and thus to prevent them from chafing against each other and gradually wearing out. Furthermore, the improved yarn is very durable due to the fact that the strain ordinarily taken by the fibre of a yarn is partly taken by the wires of the improved yarn. The tendency for the fibres to wear out, therefore, is greatly reduced by virtue of the wires in the core of the yarn.

It should be clear that the improved method may be applied to the making of a yarn out of bare wires and fibres instead of single wire fibrous yarns and fibres. In this event, the wires would be simply substituted in place of the single wire fibrous yarns and supplied to the nipper parallel to each other and in an untwisted condition.

I prefer, however, to make the multiple

wire fibrous yarn by using single wire fibrous yarns for the core, for the reasons stated above.

I claim:

1. A rope structure, comprising a core of yarns in parallel relation, and a covering of fibres spun above said core.

2. A rope structure, comprising a core of yarns in parallel relation and in a substantially untwisted condition, and a plurality of fibres enclosing said core in the form of a homogeneous layer.

3. A rope structure, comprising a core of yarns in parallel relation and in a substantially untwisted condition and a plurality of fibres enclosing said core, said fibres lying parallel to each other spirally around said core in the form of a homogeneous layer.

4. A rope structure, comprising a core of yarns in parallel relation, and a covering of untwisted fibres spun about said core, each of said yarns having a wire core.

In testimony whereof I affix my signature.

HENRY RYDER.