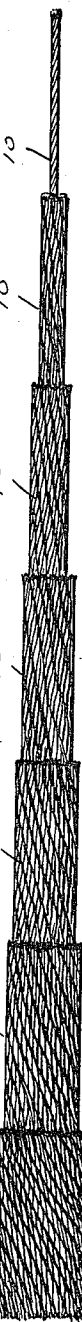
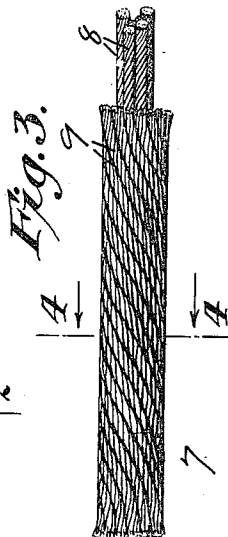
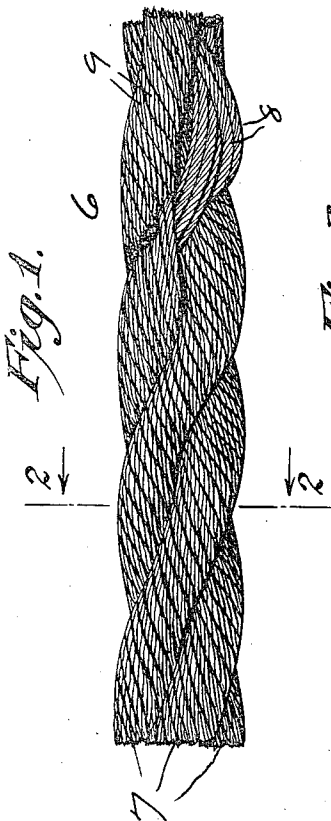
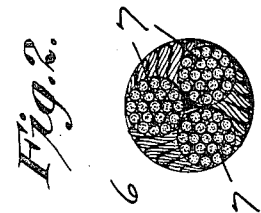


May 6 , 1924.

T. GORE ET AL
FIBER ROPE

1,492,977

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UNITED STATES PATENT OFFICE.

THOMAS GORE, OF BROOKLYN, NEW YORK, AND ROBERT S. O. LAWSON, OF JERSEY CITY, NEW JERSEY.

FIBER ROPE.

Application filed April 28, 1923. Serial No. 635,239.

To all whom it may concern:

Be it known that we, THOMAS GORE, a citizen of the United States, and a resident of New York city, in the borough of Brooklyn, county of Kings, and State of New York, and ROBERT S. O. LAWSON, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Fiber Rope, of which the following is a specification.

This invention relates to fiber ropes and has for its main object the production of a rope having greater strength and durability than fiber ropes heretofore manufactured by customary processes.

It is a well known fact that the strands of fiber ropes, as ordinarily constructed, become elongated when subjected to stress as a result of which the load is carried by less than the entire rope. The elongation of the strands is due to the untwisting action of the yarns with relation to each other that comprise the strand. It has been proposed to overcome this defect by using the so-called "slivers" or untwisted fibers as the core of the stand but, obviously, untwisted fibers are not so strong as twisted yarns.

The main feature of this invention is to prevent or minimize the elongation of the strands without sacrificing the use of the advantageous twisted yarn.

Accordingly, the invention consists of the hereinafter described features of construction, several embodiments of which are disclosed in the accompanying drawings.

In said drawings:

Fig. 1 is a view in elevation, with parts broken away, of a length of fiber rope embodying one form of the invention.

Fig. 2 is a cross sectional view of Fig. 1 on the plane of line 2—2 of Fig. 1.

Fig. 3 is a view in elevation of a single strand of the rope shown in Figs. 1 and 2 with parts broken away.

Fig. 4 is a cross sectional view on the plane of line 4—4 of Fig. 3.

Fig. 5 is a view in elevation of a piece of twisted yarn.

Fig. 6 is a view in elevation of a modified form of strand stripped to show successive layers.

Referring to Figs. 1 to 5 inclusive, 6 indicates a fiber rope composed of a plurality of twisted strands 7. Each strand is

constructed as follows: A plurality of twisted yarns 8 constitute an inner layer or core. These yarns are laid parallel to each other, preferably in straight relation. This core or layer is then served with a plurality of twisted yarns 9 laid spirally around the core. The yarn used for the core and covering is shown in Fig. 5 and consists of fibers twisted together.

It will now be understood that the different layers of the strand, i. e. the core and covering, owing to the difference in lay, will oppose each other so that the tendency to untwisting and elongation of the strand is nullified or minimized.

In Fig. 6 is shown a different method of building up a strand in which is employed seven layers of fibers 10 all having different angles of lay. It will be understood that the several layers may be laid in the same or in the opposite direction.

In both forms of the invention shown it will be seen that the covering yarns of each strand have a shorter pitch than do the core yarns, and also that the length of the core yarns, in a given length of strand, is less than that of the covering yarns. The result is that, when untwisting occurs, the limit of elongation will be reached sooner by the core yarns than by the covering yarns and therefore the stress will fall on the core of each strand which is better able to sustain the load than the covering. Furthermore as the angle of lay of the inner and outer yarns is different the layers are interlocked and any tendency to untwist is opposed.

We claim:

1. A fibre rope composed of a plurality of strands twisted together, each strand comprising a plurality of individually twisted core yarns surrounded by a plurality of individually twisted covering yarns laid at an angle to the core yarns, the covering yarns having a shorter pitch of lay than the core yarns, and the length of the core yarns, in a given length of strand, being less than that of the covering yarns.

2. A fibre rope composed of a plurality of strands twisted together, each strand comprising a plurality of individually twisted core yarns laid in parallel relation with respect to each other and surrounded by a plurality of individually twisted covering yarns laid at an angle to the core yarns, the covering yarns having a shorter pitch of lay

than the covering yarns, and the length of the core yarns, in a given length of strand, being less than that of the covering yarns.

3. A fibre rope composed of a plurality of strands twisted together, each strand comprising a plurality of individually twisted core yarns laid in straight parallel relation with respect to each other and surrounded by a plurality of individually twisted covering yarns laid at an angle to the core yarns.

4. A fibre rope composed of a plurality of strands twisted together, each strand com-

prising a plurality of individually twisted yarns arranged in a plurality of layers, the covering yarns having a shorter pitch of lay than the core yarns and the length of the core yarns, in a given length of strand, being less than that of the covering yarns.

Signed at New York city in the county of New York and State of New York this 25 day of April, 1923.

THOMAS GORE.
ROBERT S. O. LAWSON.