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F. RIESENBERG

ROPE STRAND

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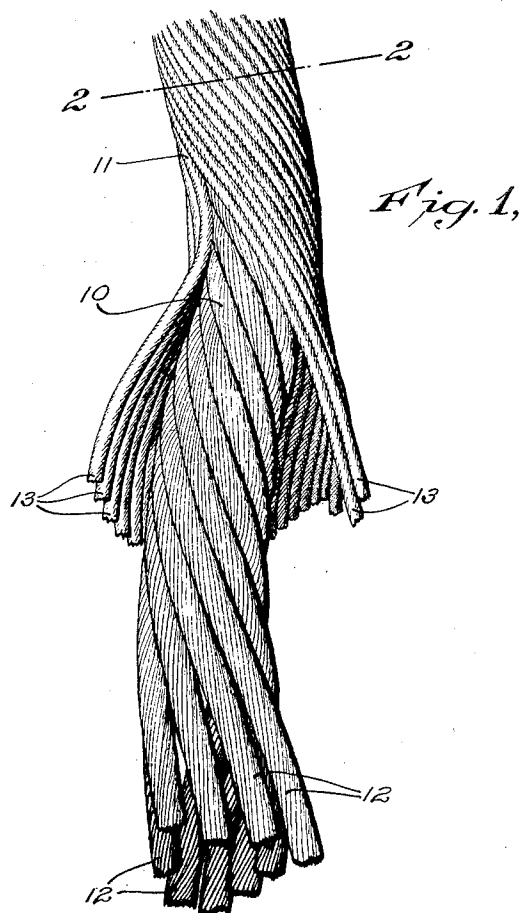
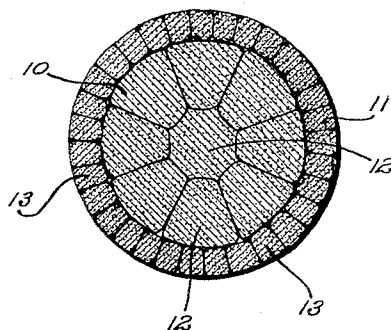


*Fig. 2.*



WITNESSES

*E. A. Wilson*  
*Chris Feinle.*

INVENTOR

*FELIX RIESENBERG*  
BY *Munn Co.*  
ATTORNEYS

## UNITED STATES PATENT OFFICE.

FELIX RIESENBERG, OF TUCKAHOE, NEW YORK.

## ROPE STRAND.

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This invention relates generally to ropes and has particular reference to strands from which ropes are produced.

Hitherto, ropes have been built up from strands comprising a core or body and a covering therefor. Such type of rope strand has been found faulty due to the fact that the fibers which make up the core or body of a strand are too loosely laid to afford the desired degree of durability and depend almost entirely upon the covering yarns for compactness. In some cases the fibers are laid in parallelism, while the yarns of the cover of a core formed of the fibers laid in parallelism is not capable of aiding in taking up the tractional or tensile strains or stresses. Furthermore in this type of rope strand it is difficult to repair the same when the core or body of the rope strand breaks, since it is almost impossible to splice the core due to the spread out condition of the fibers. It has also been found that the rope strands do not have the necessary longitudinal elasticity due to the inequality in the elasticity of the core or body of the strand compared with that of its covering. It has been contemplated to overcome this drawback by twisting together a bunch of fibers to produce the strand core or body, but the fibers are twisted to such an extent as to weaken the structure of the strand.

The present invention contemplates a strand which in itself has the desired elasticity and flexibility and in which its cover aids the core or body of the strand in taking up tractional or tensile strains or stresses so as to be of greater durability. To this end two or more unspun runs of fiber are loosely twisted to constitute what is to be known as a "hand". A core or body is then formed of a number of hands which are placed or twisted together so that each hand is in contact with adjacent hands, and no others. The core body so formed is then covered with the usual covering yarns to complete the strand. Any number of the strands so constituted are laid in the usual way to constitute a rope.

The nature of the invention and its distinguishing features will appear when the following specification is read in connection with the accompanying drawing, in which—

Figure 1 is a view in elevation of a rope strand made in accordance with the present invention and showing the cover yarns un-

twisted in part to show the strand body whose hands are also untwisted in part.

Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1.

The rope strand comprises a core or body 10 and a covering 11 for the core or body 10. In producing the core or body 10, bunches of unspun fibers are loosely twisted together to constitute a hand 12. In the present instance the fibers of the hand are twisted together in a right twist. Any preferred number of hands 12 are then fed to a former which twists the hands together loosely in a left twist to form the stand core or body. On reference to Fig. 2, it will be apparent that each hand is in contact with adjacent hands, and owing to the number of hands used each hand is in contact with three other hands. This condition results and is maintained by the covering 11 which may be of any preferred form. In the present instance the covering 11 is constituted of yarns 13 spirally laid about the core or body 10 to completely envelop the core or body. The helices of the covering yarns are disposed left handed. Three or four of the strands so constituted are then laid to form a rope which will be of greater durability and a more secure structure, owing to the intertwining of a plurality of hands of unspun fiber all working together and yielding naturally to the rope either over sheaves or around bitts and the like.

It should be obvious from the foregoing, that a strand core or body constituted of hands loosely twisted together of unspun fibers will afford a certain amount of elasticity and will therefore be aided or supplemented by the covering in taking up the tractional or tensile strains and stresses to maximize the strength of the strand; the covering thus adding durability to the rope strand as well as serving for compacting the strand core or body; and that such a strand may be readily repaired in the event that it parts or becomes broken due to the fact that the individual hands may be easily spliced in the usual manner.

I claim:

1. A rope strand comprising a strand body and a covering therefor, said body comprising hands of loosely twisted unspun fibers, said covering comprising spun yarns spirally laid about said body, the hands constituted of fibers being twisted in one and the same

direction, the hands being twisted in a twist opposite to the twist of the fibers of the hands, and the yarns of the covering being twisted in a twist similar to the twist of said hands. 10

2. A rope strand comprising a strand body and a covering therefor, said body comprising hands of loosely twisted unspun fibers,

said covering comprising spun yarns spirally laid about said body, each hand constituted of fibers twisted in a right twist, the hands being twisted in a left twist, and the yarns of the covering being twisted in a left twist.

FELIX RIESENBERG.