

No. 883,759.

PATENTED APR. 7, 1908.

O. TANGRING.
WIRE ROPE.

APPLICATION FILED OCT. 4, 1907.

Fig. 1.

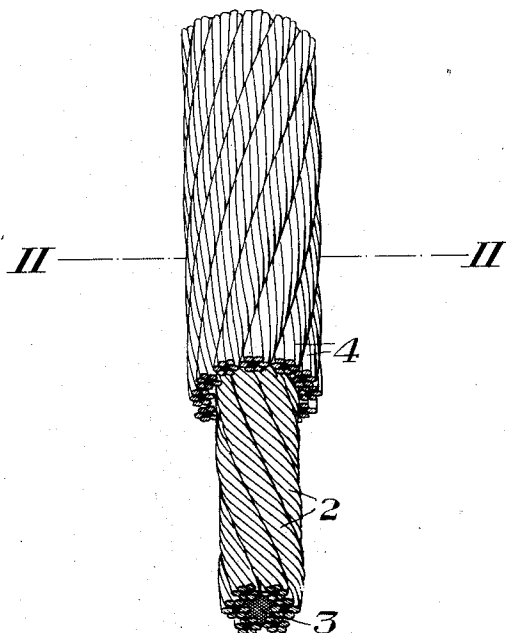
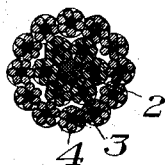


Fig. 2.



WITNESSES

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WIRE ROPE.

No. 883,759.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed October 4, 1907. Serial No. 395,918.

To all whom it may concern:

Be it known that I, OLOF TANGRING, of Worcester, Worcester county, Massachusetts, have invented a new and useful Improvement in Wire Ropes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of a piece of rope with one end cut away to show the core and the inner series of strands; and Fig. 2 is a cross section on the line II—II of Fig. 1.

My invention relates to improvements in wire ropes or cables, such as are used in mining, quarrying, building, bridge construction work, etc. In this class of work, it is of the first importance to provide a non-spinning, non-rotating wire rope for use on single line derricks. In the various operations which require the lifting of heavy loads, the use of a single rope attached directly to the load has long been considered desirable; but owing to the fact that with the ordinary rope, as soon as the load is attached and is depending therefrom, the rope begins to rotate or spin, and consequently to unwind, the load becomes dangerous to handle and often unmanageable and the strain on the fibers of the rope is such that it is liable to break. Various forms of construction of wire rope have been produced to obviate this spinning or rotating movement, but the present invention is believed to be the first to overcome the difficulties above suggested, and to produce a flexible and smooth rope.

The construction of the rope is as follows: An inner series of wire strands 2 is wound in one direction over a core 3, and an outer series of wire strands 4 is wound about the inner series 2 as a core in the opposite direction. The wires which make up each of the individual strands 2 are twisted in the same direction as the lay of the strands, but in the strands 4 the individual wires are laid in opposite directions to the lay of the strands. The number of strands required for the second or outer layer must of course be greater than the number of strands in the inner layer. For this reason, the inner layer has the wires as well as the strands all laid in one direction, as described, thereby giving them a tendency to untwist very much faster than if they

were twisted in the opposite direction to the lay of the strands. The wires in the outer layer being laid in an opposite direction to the lay of the strands do not tend to untwist as fast as in the inner layer. The strands in the outer layer, however, counteract the tendency of untwisting of the rope as a whole. When a weight is applied to the end of the rope, the greater number of strands of the outer layer have a tendency to untwist in one direction, whereas the fewer strands of the inner layer have a tendency to untwist very much faster in the opposite direction, and it is found in practice that these two actions almost perfectly balance each other.

The core 3 is preferably made of hemp, but any suitable material or metal may be used. Any desired number of wires may be used in each strand, and the core may be omitted. The number of strands in the rope depends on the size, quality and the use for which it is made, a large number of small strands giving a much smoother and more flexible rope than a smaller number of larger strands. In the drawing, I have shown the inner layer made up of six strands composed each of seven wires, and the outer layer is made up of twelve strands composed each of seven wires, but it is to be understood that these drawings are more or less diagrammatic in character, and it is not intended that they should represent the exact proportions and relations, for these proportions and relations may vary widely with the conditions of the work to be performed.

I claim:

1. A wire rope having an inner series of strands wound in one direction, and an outer series of strands wound about the inner series as a core in the opposite direction, each of said strands being composed of a plurality of wires, the wires of the inner series being twisted or laid in the same direction as the lay of the strands in such series, and the wires of the outer series being laid in opposite directions to the lay of the strands in such series, substantially as described.

2. A wire rope having an inner series of strands wound about a core in one direction, an outer series of strands wound about the inner series as a core in the opposite direction, each of said strands being composed of

a plurality of wires, the wires of the inner series being twisted or laid in the same direction as the lay of the strands in such series, and the wires of the outer series being laid in
5 opposite directions to the lay of the strands in such series, substantially as described.

3. A wire rope composed of two layers of strands wound in opposite directions and

having their individual wires laid in the same direction, substantially as described. 10

In testimony whereof, I have hereunto set my hand.

OLOF TANGRING.

Witnesses:

A. F. BACKLIN,
WM. A. BACON.