

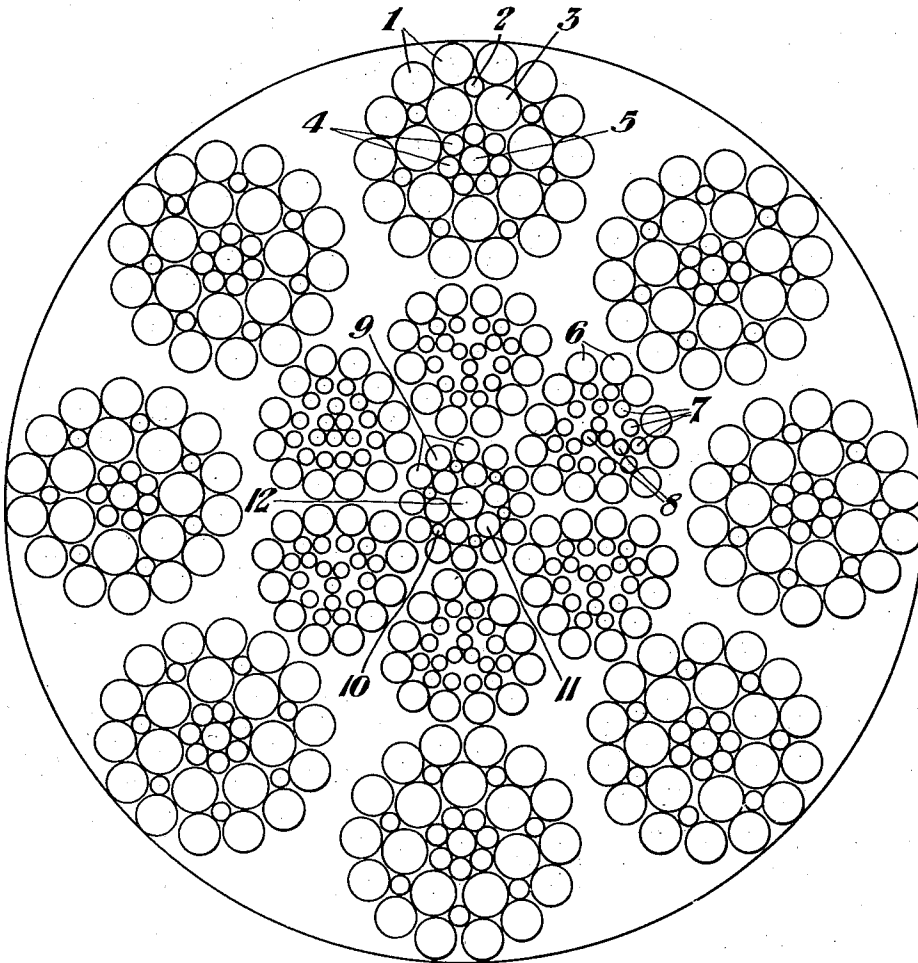
Nov. 28, 1939.

E. J. REARDON

2,181,341

WIRE ROPE

Filed Nov. 17, 1937



Inventor:
EUGENE J. REARDON,
by: *Usina & Kamber*
his Attorneys.

UNITED STATES PATENT OFFICE

2,181,341

WIRE ROPE

Eugene J. Reardon, East Haven, Conn., assignor
to The American Steel and Wire Company of
New Jersey, a corporation of New Jersey

Application November 17, 1937, Serial No. 175,108

7 Claims. (Cl. 57-148)

This invention is a wire rope characterized by a tensile strength and a resistance to radial pressure that are greater than common while being flexible to a degree comparable to ordinary constructions.

Specifically speaking, it is an 8 x 36 rope having a 6 x 30 flattened strand wire rope for a core, each of the strands of the latter having six wires arranged in triangular formation for a core and being laid over nineteen wires arranged to form a core for the same.

Such a rope is more flexible than a rope having a single strand core, yet retains the advantages of such a rope in that the flattened strand rope provides a smooth contour which permits the main rope strands to adjust themselves freely during service. The use of a flattened strand wire rope having six wires twisted in a triangular form for the cores of the flattened strands is of advantage in that it imparts greater flexibility than can be obtained by a flattened strand rope having its strands provided with solid strand cores. Furthermore, no interlock between the outer wires of the main rope strands and the valleys between the wires of the core rope strands can occur. In addition, the use of a 6 x 30 flattened strand wire rope for a core in an 8 x 36 wire rope results in the outer strand wires of the former being of sufficient size, as compared to the outer strand wires of the main rope strands, to prevent internal or radial wear from destroying the effectiveness of the main rope core. Greater tensile strength inherently results.

In explanation of the above statement respecting greater tensile strength inherently resulting when any rope structure is tensioned, the rope strands, which are helical, constrict so as to move from their proper positions unless properly supported. In the case of a wire rope, the core should function to properly support the rope strands, but it fails to do this because it is also made of helical strands which also constrict, reduce its diameter and, hence, its ability to properly support the strands when the rope is tensioned. Since constriction of a helical strand results in rotation of the strand, the use of a flattened strand wire rope as a wire rope core provides a wire rope of inherently greater tensile strength because, when the rope is tensioned, the helical flattened strands of this rope or core tend to rotate and cause their corner or edge portions to radially project from their normally flush relationship with the outside of the rope or core, whereby these portions are available to aid in supporting the rope strands.

The accompanying drawing illustrates the foregoing, each of the eight main rope strands being made of thirty-six wires including, in each instance, fourteen outer wires 1, seven filler wires 2, seven intermediate wires 3, seven inner wires 4 and one center wire 5. These eight strands are laid up over a flattened strand wire rope as described, each of the six strands of this rope consisting of thirty wires including twelve outer wires 6, twelve inner wires 7 and six wires 8 arranged in triangular form to provide a core. The illustration shows various phases of this six-wire triangular core which changes in shape from a triangle all the way to a Y or delta shape, depending upon where the cross-section is taken along the cable. This flattened strand wire rope forming the core for the main rope strands has itself a core consisting of nineteen wires including twelve outer wires 9, six filler wires 10, six inner wires 11 and one center wire 12.

Although the invention has been very specifically disclosed it is to be understood that the various principles expounded are applicable, in instances, to other forms of rope constructions. Therefore, it is to be understood that the scope of the invention is not to be limited to this specific example, except to the extent defined by the appended claims.

I claim:

1. An 8 x 36 wire rope having a 6 x 30 flattened strand wire rope for a core and which is characterized in that when it is tensioned the flattened strands of said core tend to rotate to cause their corner or edge portions to aid in radially supporting said wire rope strands.

2. An 8 x 36 wire rope having a 6 x 30 flattened strand wire rope for a core and which is characterized in that when it is tensioned the strands of said flattened strand wire rope tend to rotate to cause their corner or edge portions to aid in radially supporting the strands of said wire rope, each of the strands of said flattened strand wire rope having six wires arranged in triangular formation for a core.

3. An 8 x 36 wire rope having a 6 x 30 flattened strand wire rope for a core and which is characterized in that when it is tensioned the strands of said flattened strand wire rope tend to rotate to cause their corner or edge portions to aid in radially supporting the strands of said wire rope, each of the strands of said flattened strand wire rope having six wires arranged in triangular formation for a core and being laid over nineteen wires arranged to form a core for the same.

4. The combination of wire rope strands laid

on a flattened strand wire rope to provide a wire rope having a flattened strand wire rope for a core and which is characterized in that when it is tensioned the flattened strands of said core tend to rotate to cause their corner or edge portions to aid in radially supporting said wire rope strands.

5 5. A wire rope including wire rope strands laid on a core of non-circular strands having a tendency to rotate when said rope is tensioned, said rope being characterized in that when it is tensioned the non-circular strands of said core tend to rotate to cause portions thereof to radially project and aid in radially supporting said wire rope strands.

10 15 6. A rope assembly including helical strands laid on a core of helical strands, all said strands tending to constrict when said assembly is tensioned and at least the second named strands

tending to rotate while constricting, the second named strands having longitudinally extending portions that are flush with the outer surface of said core when said assembly is untensioned and which radially project from said surface in the event the second named strands rotate.

7. A wire rope assembly having a core in the form of a flattened strand wire rope having a plurality of wires for its own core, the wire rope strands of said assembly being laid on said core and radially supported thereby, said rope assembly being characterized in that when it is tensioned the flattened strands of said core tend to rotate to cause their corner or edge portions to aid in radially supporting said wire rope strands.

EUGENE J. REARDON.