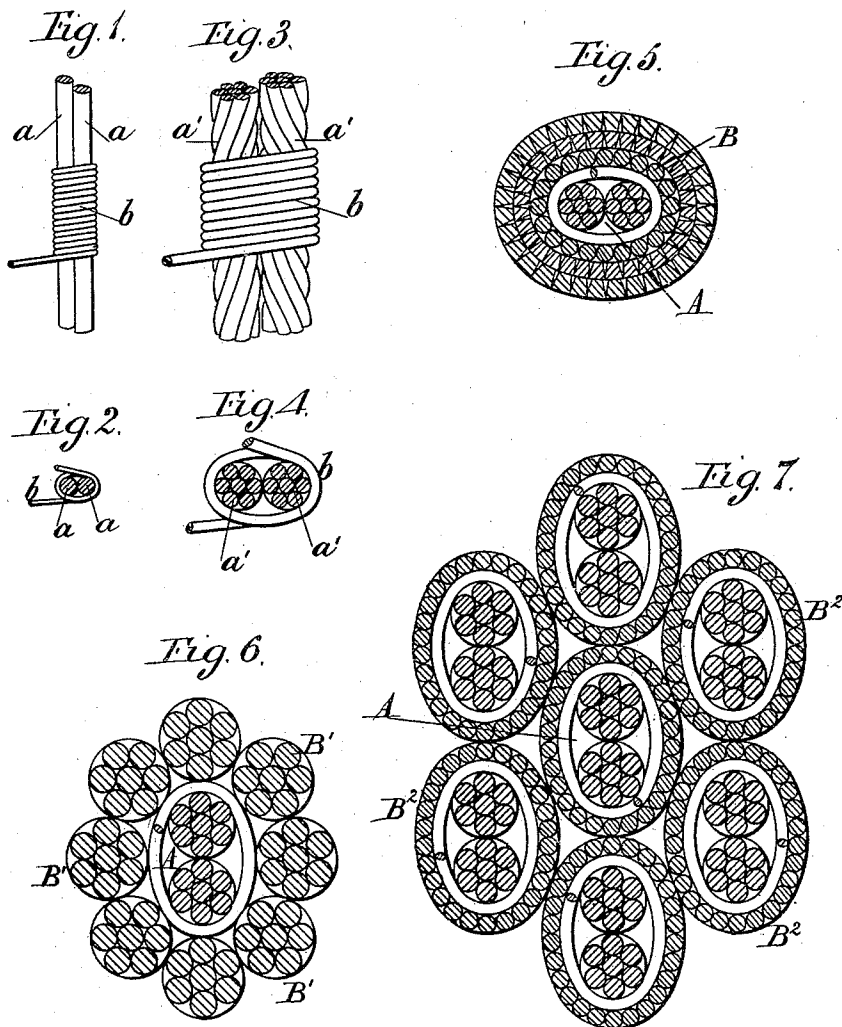


(No Model.)

E. E. BIRD.
WIRE ROPE, BAND, OR CABLE.

No. 429,005.

Patented May 27, 1890.



Witnesses:
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UNITED STATES PATENT OFFICE,

EDWARD E. BIRD, OF 28 HONEYWELL ROAD, WANDSWORTH COMMON,
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WIRE ROPE, BAND, OR CABLE.

SPECIFICATION forming part of Letters Patent No. 429,005, dated May 27, 1890.

Application filed January 16, 1890. Serial No. 337,140. (No model.) Patented in England February 12, 1889, No. 2,464.

To all whom it may concern:

Be it known that I, EDWARD ERSKINE BIRD, a citizen of England, residing at 28 Honeywell Road, Wandsworth Common, in the county of Surrey, England, have invented a new and useful Improvement in Wire Ropes, Bands, or Cables, (for which I have obtained Letters Patent in Great Britain, dated February 12, 1889, No. 2,464,) of which the following is a specification.

Hitherto wire ropes, bands, or cables have been made with the main cores either cylindrical or as nearly cylindrical as possible, and the finished rope, band, or cable has also been either cylindrical or as nearly so as is possible consistent with its being made up of a number of separate wires, strands, or ropes.

The objects of my invention are to improve the prior construction of wire cables, to provide a wire cable with a novel core, to provide a novel wire cable which is elliptical or oblong in cross-section, and to provide a novel wire cable which is elliptical or oblong in cross-section and wherein the major diameter of the cable is in one and the same plane throughout its length. To accomplish these objects my invention involves the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a detail side view of a portion of one form of core. Fig. 2 is a cross sectional view of the same. Fig. 3 is a detail side view of a portion of another form of core. Fig. 4 is a cross-sectional view of the same. Fig. 5 is a cross-sectional view of a wire cable embodying my invention. Fig. 6 is a similar view showing another type of wire cable embodying my invention. Fig. 7 is a similar view of another form of cable embodying my invention.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring first to Figs. 1 and 2, wherein—

The letters *a* indicate two core-strands, each composed of a single wire and one laid beside the other and tied together by a filament *b* of wire, hemp, or other suitable material wound spirally around the two strands, with the coils in close contact with each other, thereby pro-

ducing a core which is substantially flattened and elliptical, or approximately so, in cross-section. I then draw this elliptical or oblong core through a tube, into which it fits tightly, so made that the major diameter of the tube is in one plane throughout its entire length; or I pass the elliptical or oblong core through a fixed ring or collar, the interior of which is of the same section as the core which has to pass through it, and into which ring or collar the core just fits, and a few inches in front of this fixed ring or collar I mount a pair of metal rollers, one above the other, and with their axes parallel to the major diameter of the ring or collar. These rollers are capable of adjustment so that they squeeze the elliptical core and tend to flatten it as it passes between them.

The object of passing the core through the tube or through the ring or collar and between the rollers is to correct and remove any tendency that may have arisen in the manufacturing of it for the major diameter of the core to assume at different places through its length various positions at angles to one another, and to insure that the major diameter of the core shall be in one plane throughout its entire length. I then lay or twist the ropes, strands, or wires to form the finished rope, band, or cable round the elliptical or oblong core to the shape of which they conform, thus producing a rope, band, or cable of an elliptical or oblong shape, (more or less flattened,) or as nearly so as is consistent with its being made of a number of wires, strands, or ropes laid or twisted round a core.

Instead of constructing the core-strands of two single wires *a*, as in Figs. 1 and 2, each core-strand may be composed of a plurality of wires spirally twisted together in any direction, as at *a'*, Figs. 3 and 4, such core-strands (two or more) being placed side by side and tied together by the wire, hemp, or other filament *b* wound spirally thereupon.

The individual wires may be of any form in cross-section suitable for the conditions required, and the core-covering wires to produce the cable may be spirally twisted upon the core in one or several successive layers.

In Fig. 5 a cable is exhibited wherein the core *A* is made, as shown in Figs. 3 and 4, with three successive layers of covering-wires *B*.

In Fig. 6 a cable is exhibited wherein the core A is made as shown in Figs. 3 and 4, upon which are spirally-twisted strands B', each composed of several spirally-twisted wires.

5 In Fig. 7 the cable is made up of several spirally-wound strands B², each composed of a core A, made as shown in Figs. 3 and 4, and having a single layer of spiral covering-wires. In this construction the major diameter of the
10 cores A and the major diameter of the strands B are so placed that in the finished cable they all lie in parallel planes, and this parallel position of the planes is maintained throughout the length of the cable or rope.

15 By my invention I provide a cable or rope of elliptical or flattened section, the component parts of which are laid or twisted together without any sewing or connecting wires, and which shall, when bent across the
20 plane of its major diameter, have a greater amount of flexibility in comparison with its strength than if the rope were circular in section and from the fact that the free rope will naturally bend in the direction of greatest
25 flexibility to obviate the tendency to revolve on its axis, which is exhibited by an ordinary round rope.

Having thus described the nature of my invention and the best means I know for carrying the same into practical effect, I claim—
30

1. A wire cable elliptical in cross-section and having an internal core composed of core-strands arranged side by side and a filament spirally wound round and tying the core-
35 strands together, substantially as described.

2. A wire cable elliptical in cross-section and composed of core-strands arranged side by side, a filament spirally wound round the core-strands with the coils in close contact, and wires spirally wound upon the filament, 40 substantially as described.

3. A wire cable of approximately elliptical cross-section, having its major diameter in one and the same plane throughout its length, said cable consisting of core-strands arranged
45 side by side, a filament spirally wound round the core-strands, and wires wound upon the filament, substantially as described and shown.

4. A rope, cable, or band of elliptical or ob- 50 long transverse section, composed of a core of elliptical or oblong transverse section round which are laid or twisted a number of wires, strands of wires, or ropes, the major diameter of the rope being in one and the same plane
55 throughout its length, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of 60 November, A. D. 1889.

EDWD. E. BIRD.

Witnesses:

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