Nov. 4, 1969 A. LEACH 3,475,897

STEEL CABLE-LAID BODY

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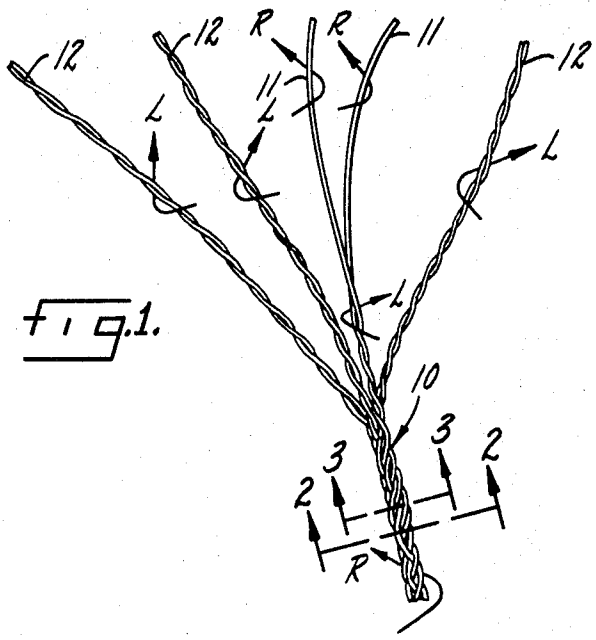


Fig. 1.

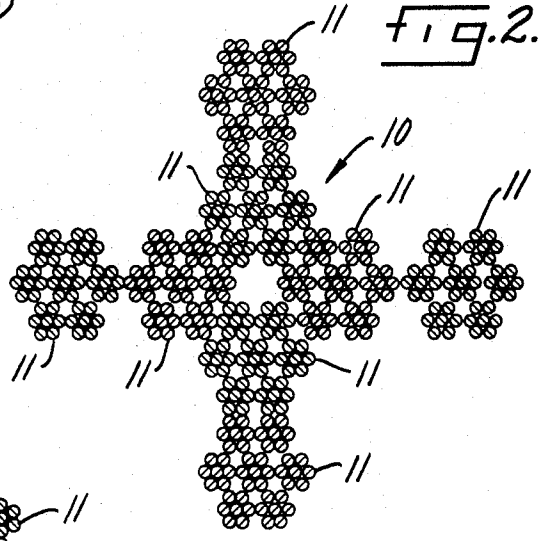


Fig. 2.

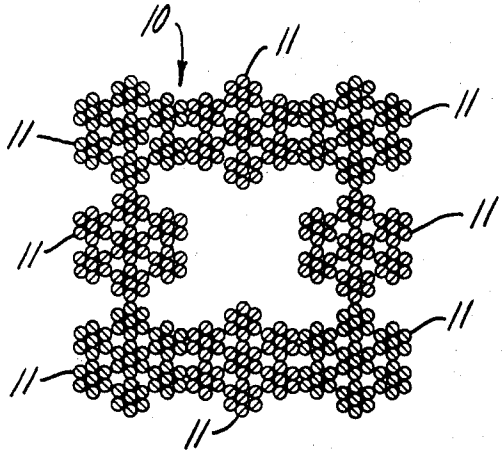


Fig. 3.

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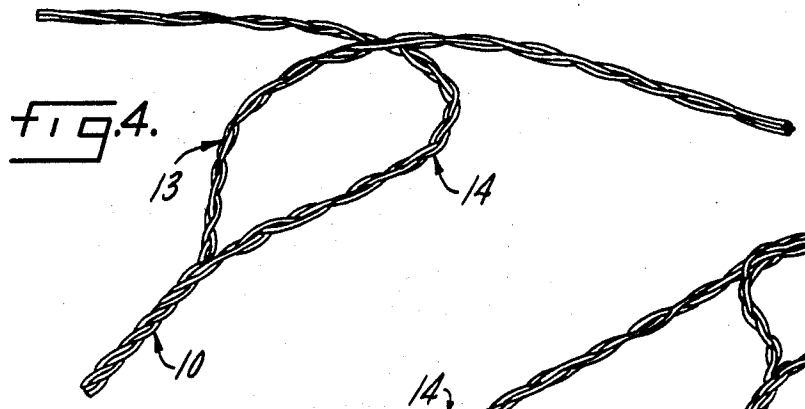


Fig. 4.

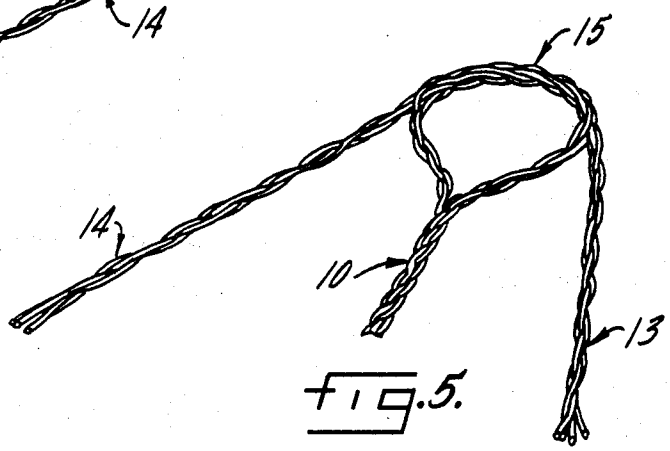


Fig. 5.

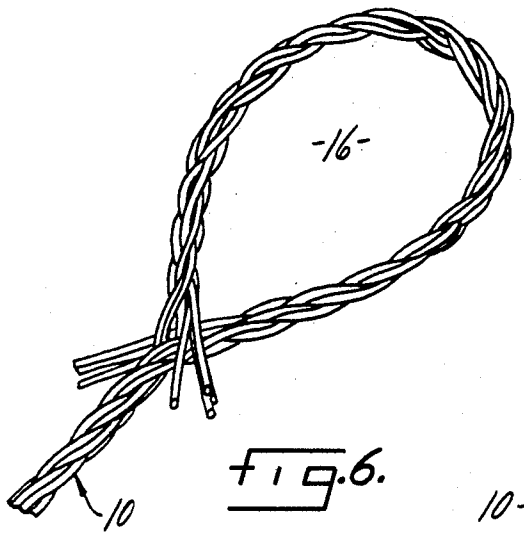


Fig. 6.

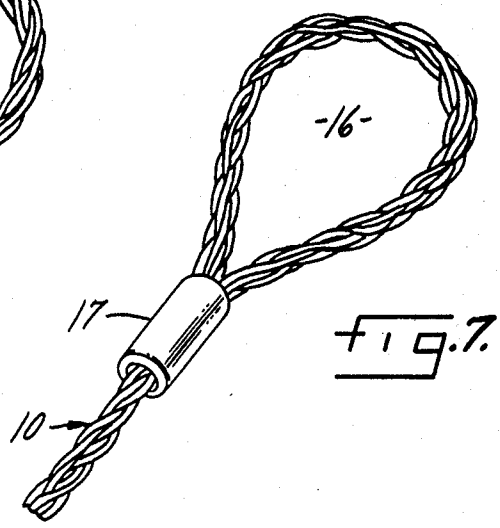


Fig. 7.

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STEEL CABLE-LAID BODY

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Int. Cl. D02g 3/36; D07b 1/06
U.S. Cl. 57—144 5 Claims

ABSTRACT OF THE DISCLOSURE

A wire rope structure especially adapted for use as a sling having eight basic ropes which are twisted in pairs to form four coreless cables, the cables in turn being twisted to form a cable laid rope structure having the same pitch as the cables, said structure being formable on conventional wire rope making machinery and having the appearance of, and kink resisting, spin resisting, flexibility and strength properties equal or superior to conventional 8-part round sling bodies. A method of forming an eye is also disclosed.

This invention relates to the fabrication and construction of a spin resistant cable laid body which may be fabricated on conventional wire rope making machinery and used either as a wire rope structure or as a basic sling structure for hitching to and lifting loads.

Accordingly a principal object of the invention is to provide a cable laid body structure which is superior to the conventional cable laid body. The latter, as known to those skilled in the art, consists of six steel core ropes helically twisted about a center steel core rope. The structure of this invention, however, has greater resistance to spin and general abuse than does the conventional structure.

Another object is to provide an eight-part multipart sling structure having the appearance of, and kink resisting, spin resisting, flexibility, and strength properties equal and/or superior to conventional eight-part round sling bodies.

Another object is to provide an eight-part multipart sling structure that can be fabricated on conventional wire rope making machinery. As known to those skilled in the are, conventional eight-part round sling bodies are fabricated either by hand or by specially designed single purpose plaiting machines.

A further object is to provide an eight-part multipart sling structure that can be as readily spliced to form loop or thimble eyes as can the conventional helically twisted wire rope or cable laid body. For example, the popular, economical, and efficient rolled Flemish mechanical eye splice, well known to those skilled in the art, can easily be applied. This is not true for the conventional eight-part round sling bodies.

Other objects and advantages of the invention will be apparent from a reading of the following description:

The invention is illustrated more or less diagrammatically in the accompanying figures wherein:

FIGURE 1 is a perspective view of a cable laid body having a portion unlaid to illustrate the internal construction;

FIGURES 2 and 3 are cross-sectional views taken along the lines 2—2 and 3—3, respectively, of FIGURE 1; and

FIGURES 4, 5, 6 and 7 show diagrammatically the steps involved in forming a rolled Flemish mechanical eye splice from the cable laid body of this invention.

Like reference numerals will be used to refer to like parts from figure to figure in the following description:

The steel cable laid body of this invention is broadly designated generally by the numeral **10** and is composed of eight basic ropes **11**. Each basic rope **11** can be of any

wire rope construction, but the preferred constructions are what is known to the art as the 7 x 7 and/or 7 x 19 right regular lay galvanized aircraft type.

The eight basic ropes **11** are paired and each pair is twisted or entwined around each other in a typical wire rope fabricating machine to form the four coreless basic cables **12**, each cable **12** consisting of two ropes **11**. The direction of twist of the cables **12** is opposite to the direction of twist or pitch of the basic ropes **11**. That is, if the eight basic ropes are helically laid in a right hand direction, the four basic cables **12** are twisted in a left hand direction. This arrangement is illustrated in FIGURE 1 by the symbols R and L.

The four basic cables **12** are also twisted or entwined about each other, again in a typical wire rope fabricating machine, to form the coreless steel cable laid body illustrated at **10**. The direction of twist of the finished body is opposite to the direction of twist of the basic cables **12**. That is, if the four basic cables **12** are twisted in a left hand direction, the finished steel cable laid body **10** is twisted in a right hand direction.

The alternately opposite direction of twist of the eight basic ropes **11**, the four basic cables **12**, and the finished steel cable laid body **10** is an important feature of this invention and imparts to the structure its non-spinning, stable properties as well as its distinctive appearance.

Another important feature of the invention is that the length of twist of the four basic cables **12** and that of the finished steel cable laid body **10** are identical, or within the tolerances well known to those skilled in the art.

FIGURES 4, 5, 6 and 7 illustrate the ease with which the steel cable laid body lends itself to the formation of spliced eyes, and may be described as follows:

The steel cable laid body is split into two sections **13** and **14** of a desired length which correspond substantially to the length of the eye to be formed, each section having two adjacent basic cables **12**. Care should be taken not to disturb the set or relative position of each of these pairs of adjacent basic cables. See FIGURE 4.

The two sections **13** and **14** are bent in toward each other and entwined together at the midpoint or bight **15** of the eye, thereby reforming a short length of the original steel cable-laid body. See FIGURE 5.

Each side of the eye is laid up, each section being laid up alternately. Care should be taken to let each section fall naturally into the spaces that are open to receive them. The eye **16** is completed as shown in FIGURE 6.

The eye **16** is finished by terminating all eight basic rope ends within a metal sleeve **17** located in the crotch or base area formed at the junction of the rope structure and the eye splice, and locking the sleeve by swaging or pressing. See FIGURE 7.

From the foregoing it readily becomes apparent that a steel cable laid structure has been developed which has characteristics comparable to the conventional eight-part round plaited sling body, yet which lends itself to relatively economical fabrication on existing typical wire rope machinery and ease of eye splicing and sling fabrication.

The steel cable laid structure is superior to the conventional helically laid cable laid body in ruggedness, compactness, flexibility, spin resistance, and abuse resistance.

Although a preferred embodiment of the invention has been illustrated and described, it will at once be apparent to those skilled in the art that numerous modifications may be made within the spirit and scope of the invention.

I claim:

1. A cable laid metallic rope structure, said rope structure comprising

four composite, coreless cables twisted about one another in a first direction of twist to thereby form the rope structure,

each of said composite coreless cables being composed of a pair of basic ropes, each of the basic ropes in each composite coreless cable being twisted in a second direction which is opposite from the aforesaid first direction of twist of the composite coreless cables, each of said basic ropes being twisted in the aforesaid first direction of twist, whereby the rope structure components have alternate directions of twist.

2. The rope structure of claim 1 further characterized in that the basic rope construction is right regular lay.

3. The rope structure of claim 1 further characterized in that the length of twist of the coreless cables and the rope structure are substantially identical.

4. The rope structure of claim 1 further characterized by and including an eye splice, said eye splice having the same body structure as an unspliced section of the rope structure.

5. The rope structure of claim 4 further characterized in that the eye splice is formed from two sections of the body structure, each section being composed of two composite coreless cables which have been entwined together commencing at the bight of the eye, and further including means for locking the ends of the basic ropes at the crotch of the splice.

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U.S. Cl. X.R.

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