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SEWING WIRE FOR FLAT ROPE

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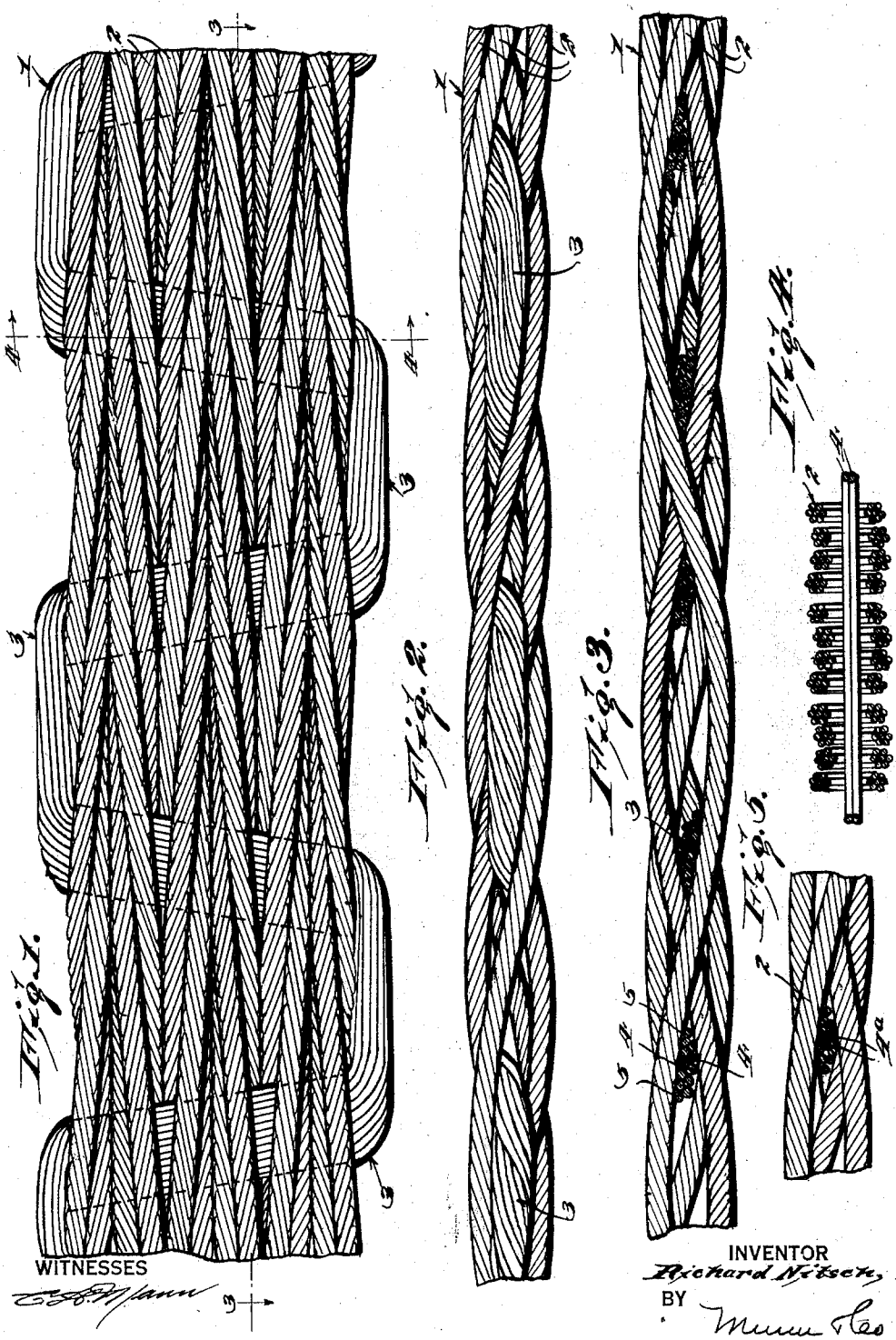


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

WITNESSES

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SEWING WIRE FOR FLAT ROPE

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This invention relates to wire ropes or cables of the flat type and more particularly to the sewing wires used in constructing such cables.

It is well known that with flat metal ropes or cables composed of numbers of wire strands secured together by stitching or lacing that the weakest point in such rope is the sewing wire. This sewing wire, usually employed, is soft Swedish or Norway iron wire which is known in the art as "sewing wire" and which is a low grade open hearth single or double annealed steel wire.

The number and size of sewing wire used depends upon the size of the flat rope to be made and it varies in size from #20 to #16 and in number of wires from 10 to 16.

The strand wires of the rope being of higher grade metal, such as steel, nick the sewing wires and cause them, under the strain produced by the load, to rapidly break and result in splitting the rope necessitating frequent resewing of the rope. Bad sheaves and hoist reel conditions also cause the same effect.

A primary object of this invention is to overcome these objections and defects and provide a rope or cable in which danger of sudden breakage is eliminated and in which the necessity of resewing is reduced to a minimum and the life of the rope greatly prolonged.

Another object is to so produce sewing wires for use in the manufacture of flat wire cables or ropes that a soft wire bed will be formed between the hard strand wires of the rope and the hard cores of the sewing wires, even after the soft sewing wires are nicked and broken since the stubs of such soft wires remain inside of the strands and the rope remains compact allowing the strands to be used for resewing without damage from internal nicking.

Another object of the invention provides a composite sewing wire for use in manufacturing flat metal ropes or cables constructed with a hard metal core incased in soft wires thereby avoiding internal nicking of the wires and prolonging the life of the cable.

In carrying out these objects, the invention is susceptible of a wide range of modification without departing from the spirit or sacrificing any of the advantages of the claimed invention; there being shown in the drawings for illustrative purposes a preferred and practical form, in which:

Figure 1 represents a side elevation of a piece of flat rope manufactured with the sewing wires constituting this invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is a longitudinal section taken on the line 3—3 of Fig. 1;

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 1;

Fig. 5 is a detail longitudinal section showing a slightly different form of sewing wire.

In the embodiment illustrated a flat metal rope is shown at 1 composed of a plurality of longitudinally extending strand wires 2 which may be composed of any desired number of wires depending upon the flexibility of the cable to be manufactured. These strands 2 are laid right and left lay alternately, the number of strands depending upon the required width and strength of the cable.

The strands 2 are sewed or laced with a strand of sewing wire 3 which constitutes the present invention. This sewing wire 3 is a composite wire being constructed of a combination of soft and hard wires the number of which may vary in respective strands provided that the hard wires shown at 4, two being here illustrated, do not exceed one-half the number of wires used in making up the sewing strand. These hard wires 4 are preferably made of high grade cast steel and have formed around them a bed of soft wires 5 which protect the hard wires 4 which constitute practically a core for the strand 3, against nicking or by the hard wires which form the strand 2 of the cable. The hard wires 4 constituting the sewing wire core are of a diameter not to exceed that of the soft wires 5 as shown in Fig. 3 and are preferably made of less diameter as shown at 4^a in Fig. 5. It is of course understood that owing to the different sizes of finished rope required the numbers and the diameters of the sewing or lacing wires will also necessarily vary according to the type of the finished rope.

From the above description it will be seen that the soft wire strands 5 of the sewing wires 3 form a bed between the wires used in the manufacture of the strands of the rope and the cast steel core wires 4 of the sewing wire even after the soft sewing wires 5 have been nicked and broken. The stubs remain inside the rope strands whereby the rope strands remain compact and in this way eliminate any danger of sudden rope breakage due to internal nicking of the wires in the strand. The strands may also be used for resewing without damage from internal nicking.

The use of these composite sewing wires will at least double the amount of tonnage hoisted by the cable before resewing is required. Ropes sewed by these composite wires will also provide at least double service over those sewn with wires as now made even although the sheave wheels are badly grooved or if the hoist reels of sheave shafts are out of line.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will, of course, be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention or its scope as claimed.

I claim:

1. A composite sewing strand or lacing for metal rope composed of hard and soft wires one embedded in the other.

2. A composite sewing strand or lacing for metal rope composed of hard and soft wires, the soft wires being positioned outside the hard wires and arranged to form a bedding for the hard wires to protect them from cutting contact with the strands of the rope when in use.

3. A composite sewing strand or lacing for metal rope composed of hard and soft wires, the soft wires being arranged to form a bedding for the hard wires to protect them from cutting contact with the strands of the rope when in use, the hard wires being of less diameter than the soft wires whereby the hard wires are protected against cutting contact with the hard wires of the rope strand.

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