

1,306,636.

Patented June 10, 1919.

Fig. 1.

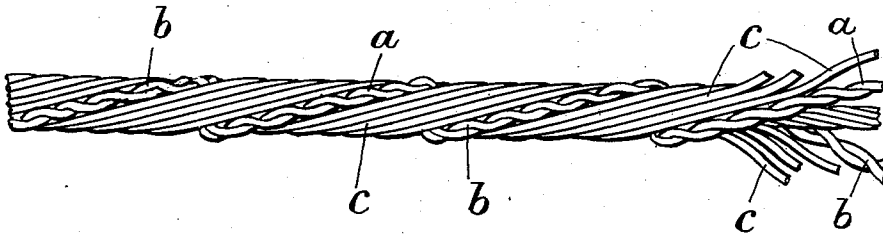
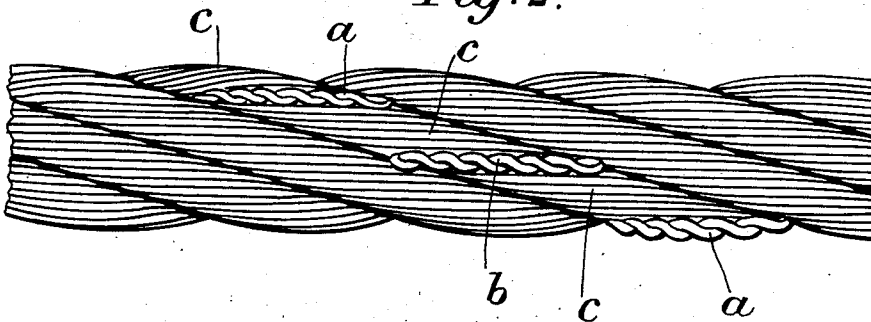


Fig. 2.



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ABRASIVE WIRE ROPE.

1,306,636.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE MAY SELBY, a subject of the King of Great Britain, residing at West Ferry road, Millwall, in the county of London, England, have invented new and useful Improved Abrasive Wire Ropes, of which the following is a specification.

This invention has for its object to provide improved wire rope of the kind for cutting, or weakening, other ropes, and for analogous cutting, tearing, or weakening, operations wherein cutting wires are employed with the ordinary wires of the cable.

According to this invention there is combined, with a strand, or with the strands of the rope, additional wires, twisted, or stranded, together in a direction the reverse of the direction of twisting or stranding of the ordinary wires of the strand, or strands; to which they are applied, the said additional wires being of metal hard enough to cut, or tear, or sufficiently abrade, and coiled around, or incorporated with, the other wires of one, or more than one, of the strands, of the rope in such manner, that the said additional wires, will exert a cutting, tearing, or weakening, action when the rope with which they are combined is drawn across, or otherwise moved in contact with, the object to be cut, torn, or weakened.

The accompanying drawing represents in Figure 1 a strand for a rope in accordance with this invention and Fig. 2 shows a rope in which such a strand is combined.

The improved rope may, for instance, be made by stranding, or twisting, together two additional wires of the aforesaid character, as illustrated at *a, b*, in the accompanying drawing, and coiling such twisted, or stranded, additional wires *a, b*, around the ordinary wires *c*, of a strand for the rope, the said additional wires *a, b*, projecting somewhat from the general run of the rope with which the strand to which they are applied is incorporated. Fig. 1 represents such a strand and Fig. 2 represents a rope made of several strands one of which is a strand with additional wires applied to it, as shown in Fig. 1, while the other strands are ordinary strands of wires *c*, although any number of the strands may be like the strand shown in Fig. 1. It will be noted that the abrasive twists *a* and *b* are laid in the strand *c* and the latter so laid in the rope that the portions of the twists *a* and *b* exposed on the outer

surface of the rope, extend in a direction substantially parallel with the axis of the rope.

The additional wires incorporated with the rope in accordance with this invention as aforesaid may be of any suitable shape to effect the desired cutting action.

The two, or more, additional wires *a, b*, which are twisted, or stranded, together, and applied to a strand as in Fig. 1, for the purposes of this invention, are twisted, or stranded, in a direction opposite to that in which the ordinary wires *c* of the strands of the rope and the wires *a, b*, are twisted, or stranded together. The wires may be made of any quality of metal suitable for the purpose, for example, the wires *a, b*, may be made of "hawser" quality steel and the wires *c* may be made of what is known as "plow steel" but I do not limit myself to these particular qualities of metal.

In operation, a rope such as shown in Fig. 2, and comprising one or more strands in which the abrasive cords are incorporated, is drawn with a cutting or abrading action across the object which it is desired to sever. The present rope is particularly effective for cutting metal chains or cables, and may be used to advantage when submerged for cutting anchor chains or cables and the like for vessels or submerged mines, etc. In such case the opposite ends of the abrasive rope could, for example, be carried by a pair of mine sweepers traveling on the surface of the water and dragging a submerged length of the rope across an anchor chain or cable to be cut.

What I claim is:—

1. A rope strand comprising a plurality of slivers twisted in one direction, and an abrasive cord incorporated in the surface of the strand and projecting slightly beyond the surface of the latter, said abrasive cord comprising slivers twisted together in a direction opposite to the twist of the strand slivers, and being laid in the strand in accordance with the twist of the latter.

2. In a construction such as specified in claim 1, a plurality of abrasive cords laid in the surface of the strand at spaced intervals.

3. In a rope comprising a plurality of strands, certain of said strands being formed of plain twisted slivers, and certain other of said strands covering a construction such as specified in claim 1.

4. A rope comprising a plurality of strands, certain of said strands being formed

of slivers twisted together and an abrasive cord incorporated in the strand and projecting slightly beyond the surface thereof, the lay of said abrasive cord in the strand and the lay of the strand in the rope being such that the portions of the abrasive cord exposed at the surface of the rope extend in a direction substantially parallel to the axis of the rope.

10 5. A rope comprising a plurality of strands twisted together, certain of said strands comprising slivers and an abrasive cord twisted together in one direction, the slivers of the abrasive cord being twisted

in the opposite direction, and the lay of the abrasive cord in its strand and the lay of the strand in the rope being such that the portions of the abrasive cord exposed at the surface of the rope extend in a direction substantially parallel to the axis of the rope.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE MAY SELBY.

Witnesses:

ROBERT WILLIAM AXBERRY,
WILLIAM HIRIGAN.