Jan. 17, 1928. 1,656,669

T. GORE

WIRE ROPE

Filed Feb. 12, 1927

Fig. 1.

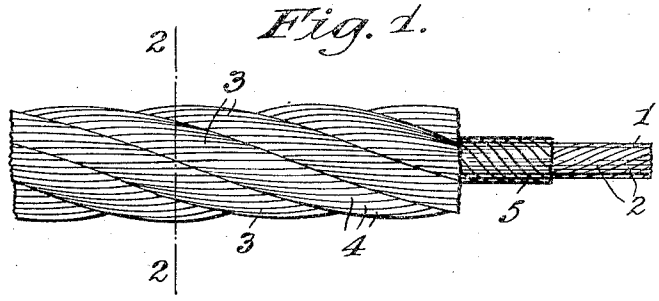


Fig. 2.

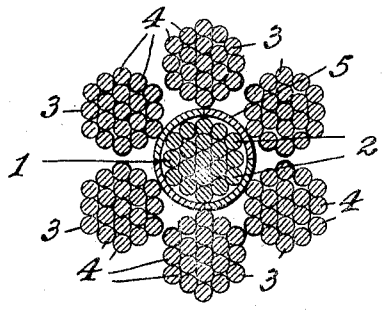


Fig. 3.

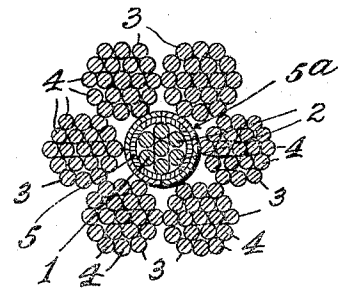


Fig. 4.

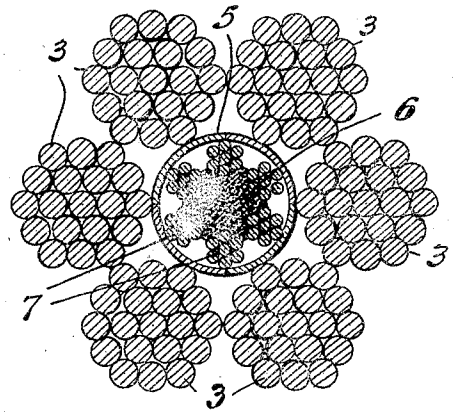
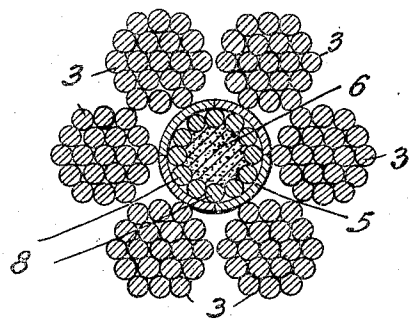


Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS GORE, OF BROOKLYN, NEW YORK.

WIRE ROPE.

Application filed February 12, 1927. Serial No. 167,614.

This invention relates generally to wire ropes, particularly those that are subject to severe duty and to the action of solutions that may be absorbed during its use, an example of such ropes being those that are employed in drilling oil wells whether by the rotary or beam standard systems.

The main object of this invention is to obtain increased life of service of the rope by eliminating the cause of high, low and sunken strands, to reduce the uneven surface of the rope at the point or points where said rope bisects itself in winding one layer over another under extreme stresses of load, and to minimize internal corrosion of said rope.

To this end the invention consists of the interposition of an elastic metallic member between the core and the outer strands.

Fig. 1 is a view in side elevation of a rope, with parts broken away, showing one embodiment of the invention.

Fig. 2 is a cross sectional view substantially on the line 2—2 of Fig. 1.

Figs. 3, 4 and 5 are views similar to Fig. 2 showing modified forms of the invention.

In the form in which the invention is disclosed in Figs. 1 and 2, the reference character 1 indicates a strand constituting a core, said strand preferably consisting of round wires 2. 3 indicate outer strands, each preferably composed of twisted wires 4, laid around the core. Interposed between the core and the outer strands is a metallic elastic member here taking the form of one or more flat-rolled or drawn wires 5 laid helically around the core. Member 5 is preferably of softer material than the wires of the outer strands.

It will be understood that, by this construction, abrasion between the core and the high tensile strength wires of the outer strands is prevented, and also that there can be no collapsing of the core such as is frequently the case when an all-fiber core is employed, this collapsing resulting in sunken spots on the rope. Further, the interposed metallic member will not absorb or harbor solutions in which the rope may become immersed. Such solutions frequently contain sulphuric acid or other deleterious matter and if a fiber member should be used between the core and the outer strands such fiber member would absorb and then give off such solutions and set up a serious corrosive action.

The metallic elastic member really has the action of a spring and will readily contract or expand in harmony with the impact or drilling operation in which the rope is used, and will, as a matter of fact, assist such action because a pulsation is really set up in the rope by reason of its presence and this will facilitate the drilling operation. This metallic elastic member may consist of a single layer of flat-rolled wire as shown in Fig. 2, or, as shown in Fig. 3, it may consist of several such layers 5 and 5^a, and it will be understood that each layer may consist of one or more wires laid side by side.

The lay of the rope may either be Lang lay or regular lay as may be desired.

In Fig. 4 is shown a modification in which the core has a fibrous center 6 surrounded by small strands 7 and in Fig. 5 the core is composed of a fibrous center 6 surrounded by a single layer of wires 8. In all forms of the invention the core is therefore at least provided with an outer covering of wires and as shown in Figs. 1 to 3, the core may be of wires throughout.

I claim:

1. A rope comprising: a strand, having a metallic covering, constituting a core, a plurality of outer strands, each composed of twisted wires, laid around the core, and flat wire, constituting an elastic member and softer than the wires of the outer strands, interposed between the outer strands and the core and laid helically around the latter.

2. A rope comprising: a strand, composed of round wires, constituting a core, a plurality of outer strands, each composed of twisted wires, laid around the core, and flat wire, constituting an elastic member and softer than the wires of the outer strands, interposed between the outer strands and the core and laid helically around the latter.

Signed at New York, in the borough of Manhattan, county of New York, and State of New York, this 10th day of February, 1927.

THOMAS GORE.