Jan. 21, 1964 W. A. LUCHT 3,118,273

ROPE EYE AND METHOD OF MAKING THE SAME

Filed May 28, 1962

FIG. 1.

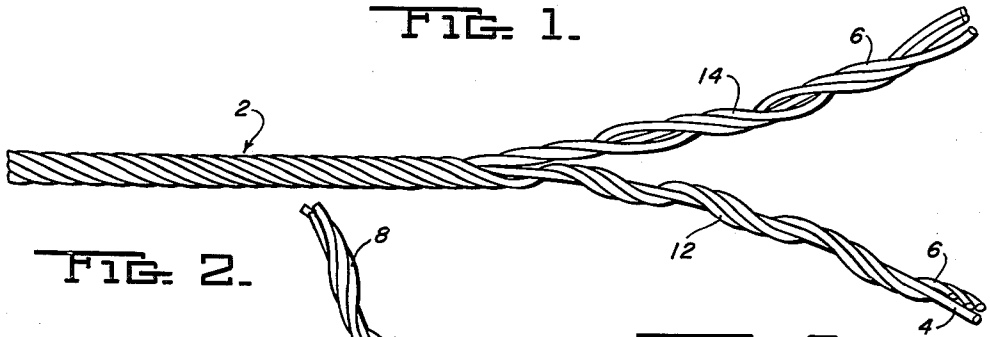


FIG. 2.

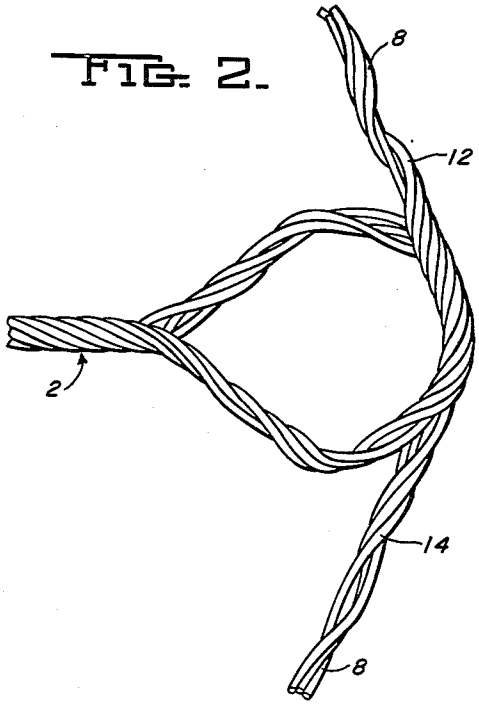


FIG. 3.

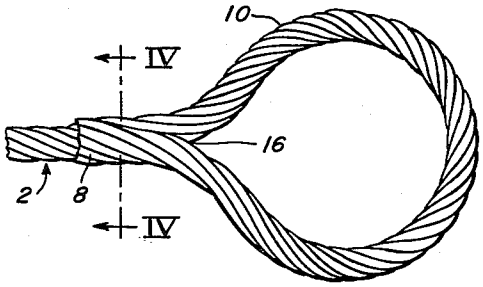


FIG. 5.

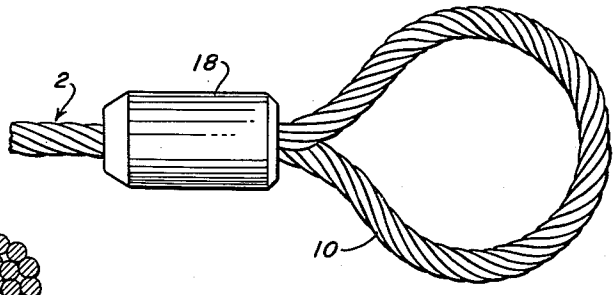
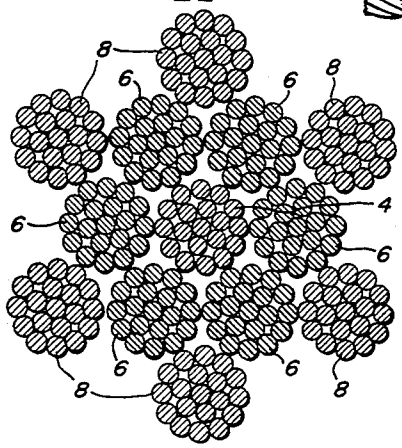


FIG. 4.



INVENTOR.
WILBERT A. LUCHT
By Donald G. Dalton
Attorney

United States Patent Office 3,118,273 Patented Jan. 21, 1964

3,118,273
ROPE EYE AND METHOD OF MAKING THE SAME

Wilbert A. Lucht, Orange, Conn., assignor to United States Steel Corporation, a corporation of New Jersey

Filed May 28, 1962, Ser. No. 198,289
4 Claims. (Cl. 57—142)

This invention relates to a rope eye and to a method of making the same and more particularly to a rope eye made from steel rope in which the ends of the rope are secured by means of a ferrule. A rope eye of this general type is disclosed in Howe Patent No. 1,334,244. The ends of the rope strands surround the main body of the rope and do not carry any appreciable load. Hence, they are called dead strands as compared to the live strands of the rope which carry the load. When a ferrule is swaged around the dead strands it compresses the dead strands which in turn press against the live strands. Since the wires of the dead strand are of the same hardness or tensile strength as the live strands the pressure exerted by swaging causes the outer wires of the dead strands to severely notch the outer wires of the live strand. These notches reduce the wire strengh with a resultant decrease in the load carrying capacity of the sling or other device in which the eye is used. It is also difficult to position the dead strands around the live strands and to place the ferrule thereover.

It is therefore an object of my invention to provide a wire rope assembly having an eye at one end wherein the dead strands will not notch the live strands.

Another object is to provide a method of making such an eye wherein the dead strands may be easily positioned around the live strands.

These and other objects will be more apparent after referring to the following specification and attached drawings, in which:

FIGURE 1 is a view of a wire rope showing a step in the method of making the eye;

FIGURE 2 is a view showing the eye partially formed;

FIGURE 3 is a view showing the eye formed, but with the ferrule not yet in place;

FIGURE 4 is an enlarged view taken on the line IV—IV of FIGURE 3; and

FIGURE 5 is a view of the completed assembly.

Referring more particularly to the drawings, reference numeral 2 indicates a wire rope which, as shown in FIGURE 4, is made up of a center strand or core 4 and six main strands 6. As shown each strand is made up of nineteen wires which are the cold drawn steel wires normally used in wire rope.

According to my invention the extreme end portion 8 of the rope 2 is annealed, the annealed length being such as to form the dead strands adjacent eye 10 which is to be formed. The end of the rope 2 is unlaid for a sufficient length to form the eye 10 and is divided into two bundles 12 and 14. The bundle 12 includes the center core strand 4 and three main strands 6. The bundle 14 includes the other three main strands. The two bundles 12 and 14 are intertwined with each other as shown in FIGURE 2 to form a loop. The center core 4 is severed from the bundle 12 at crotch 16 and the main strands of bundles 12 and 14 are laid around the main portion of the rope adjacent the eye 10. Because the ends 8 of the main strands are annealed they are easily positioned in the valleys between the live strands of the rope and will hug the live strands closely. Thus ferrule 18 can be easily placed in position around the outside of the

dead strands. Ferrule 18 is then swaged to decrease its diameter and move the annealed strands into tight engagement with the live strands of the rope.

While one embodiment of my invention has been shown and described it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. The method of forming an eye in one end of a steel wire rope which comprises annealing a short length of the said end of the rope, unlaying a length of said end of the rope and dividing said length into two bundles, intertwining said bundles with each other to form an eye with the said annealed short length extending from the eye, laying the said annealed short length around said rope adjacent the eye, then fitting a ferrule around said annealed short length, and swaging the ferrule to decrease its diameter and move the annealed length into tight engagement with the surrounded rope.

2. The method of forming an eye in one end of a steel wire rope having a center core strand and six main strands, which method comprises annealing a short length of the said end of the rope, unlaying a length of said end of the rope and dividing said length into two bundles, one containing the core strand and three main strands and the other containing the remaining three main strands, intertwining said bundles with each other to form an eye with the said annealed short length extending from the eye, severing the center core strand from the bundle approximately at the point it leaves the eye, laying the main strands of the said annealed short length into the valleys between the strands of said rope adjacent the eye, then fitting a ferrule around said annealed short length, and swaging the ferrule to decrease its diameter and move the annealed length into tight engagement with the surrounded rope.

3. In a rope having a body portion, an eye at one end of said body portion, said eye including two bundles integral with said body portion, each bundle containing a plurality of strands, said bundles being overlapped and intertwined with each other, the free ends of said bundles overlaying said body portion adjacent said eye, and a ferrule surrounding said body portion and free ends of the bundle in swaged engagement therewith, the said free ends of said bundles under said ferrule being annealed steel and the strands in the eye and in the body portion being cold drawn steel.

4. In a rope having a body portion composed of a center core strand and six main strands, an eye at one end of said body portion, said eye including two bundles integral with said body portion, one containing the core strand and three main strands and the other containing the remaining three main strands, said bundles being overlapped on each other and intertwined with each other, the free end of said center strand terminating at the point it leaves the eye and the free ends of said main strands being received in the valleys between the strands of said body portion adjacent said eye, and a ferrule surrounding said body portion and free ends of the bundle in swaged engagement therewith, the said free ends of said bundles under said ferrule being annealed steel and the strands in the eye and in the body portion being cold drawn steel.

References Cited in the file of this patent

UNITED STATES PATENTS

2,463,199	Peterson	Mar. 1, 1949
3,017,739	Gathman	Jan. 23, 1962