Aug. 13, 1929. S. E. CARNEY 1,724,823

SPLICE

Filed Sept. 18, 1928

Fig. 2.

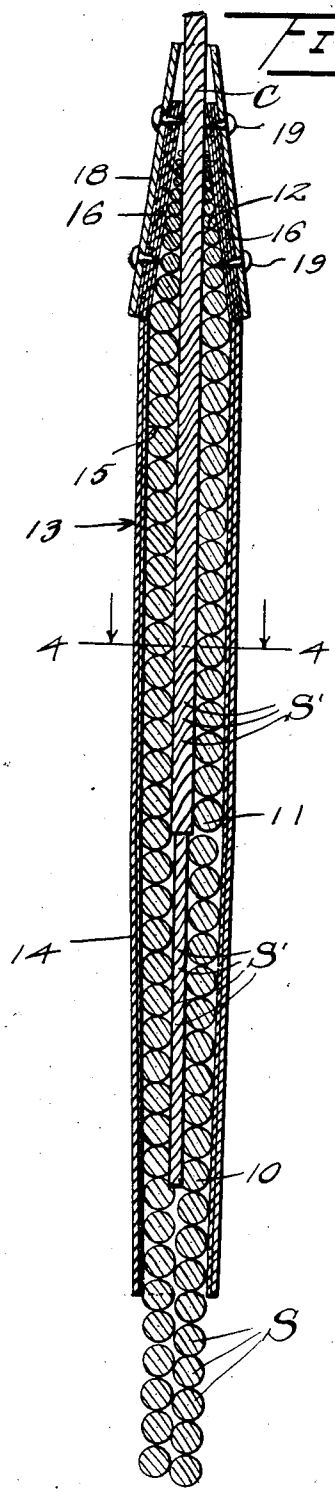


Fig. 1.

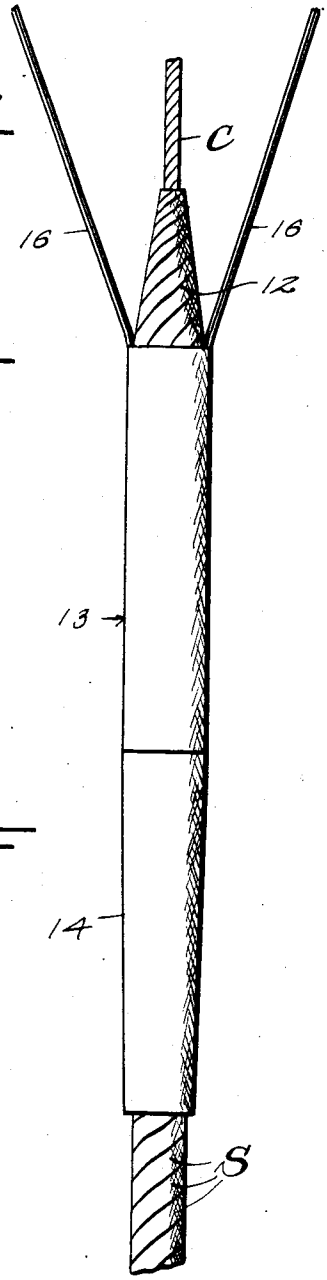


Fig. 3.

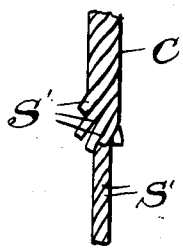
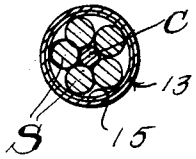


Fig. 4.



Inventor

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By Watson E. Coleman

Attorney

Patented Aug. 13, 1929. 1,724,823

UNITED STATES PATENT OFFICE.

SAMUEL E. CARNEY, OF WICK, WEST VIRGINIA, ASSIGNOR OF FIFTY-ONE ONE-HUNDREDTHS TO JUSTUS COLLINS, OF CHARLESTON, WEST VIRGINIA.

SPLICE.

Application filed September 18, 1928. Serial No. 306,779.

This invention relates to splices and more particularly to a splice between flexible cable and rope and a means for protecting the same.

An important object of the invention is to provide a device of this character which will protect the rope at the splice against the fraying ordinarily occurring due to contact of the rope with the wall of a bore through which it is passing, and more particularly to an improvement in protectors for such splices of the type indicated in my prior Patent, No. 1,651,339, granted November 29, 1927, for splices.

As pointed out in this patent, in oil well drilling apparatus, splices of this character are very often employed and since the bore of an oil well is usually crooked, there is a natural tendency of the splice to come in contact with the well casing. This tendency, increased by the "whipping" of the rope and cable in operation causes a considerable friction which is most noticeable at the increased diameter afforded by the splice. Since the splice is naturally weak and the cable is relatively stiff with relation to the rope, there is an increased tendency to breakage at this point, for there are more acute bends in the rope and, as pointed out, a greater friction thereon. Accordingly, an important object of this invention is to provide a splice protector for use in connection with such splices in which the number of parts is reduced to a minimum, the difficulties of application of the protector are practically eliminated and, at the same time, a structure provided over which a rope knife may be passed.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a side elevation of a partially completed splice having a cover constructed in accordance with my invention;

Figure 2 is a vertical sectional view through the completed splice;

Figure 3 is a fragmentary side elevation illustrating the manner of reducing the cable;

Figure 4 is a section on the line 4—4 of Figure 2.

In the drawings, I have illustrated a splice between cable and rope constructed in the usual manner of forming the same. This splice is usually formed by separating the strands S of the rope and laying the cable C therein as a core. In order that the rope strands, when rewound about this core, may not be formed with too abrupt a shoulder at a point intermediate the ends of the splice, a number of the strands S′ of the cable are cut-away, leaving only two or three strands thereof, which extend to the lower end of the splice. It will be obvious that when the rope strands are wound about a cable reduced in this manner, the diameter of the rope in the complete splice will increase at two points 10 and 11. The free ends of the strands of the rope are usually thinned before wrapping the same about the cable, with the result that the upper end of the splice tapers fairly sharply, as clearly indicated at 12.

In accordance with the present invention, I provide a tubular sleeve, generally designated at 13, which is of a length slightly greater than the length of the splice, disregarding the tapered portion 12. This sleeve has its lower or rope-engaging end tapering from a point approximating the reduction of the cable at 11 to its lower end, as indicated at 14, and the upper end thereof is of uniform diameter. This splice cover is formed of a rubber tube having a fabric core or lining 15. At its upper end, this fabric lining is provided with a continuation in the form of two or more diametrically opposed strips.

When the cover is applied, the upper end of the tube aligns with the lower end of the tapered portion 12 and the strips 16 are wound about the tapered portion in opposite directions to form a binding thereon and an anchor preventing the tube from moving downwardly. This binding forms a tapered upper end for the tube, more clearly shown at 17, and over this tapered upper end of the tube, a metal cap 18 is applied, which is secured by means of securing elements 19 which are of such length that they will not extend into or damage the cable C. A splice protector of this character may be very readily and rapidly applied to the cable and being formed of "sand blast" or some similar grade of rubber, will have a wearing quality as great as that of the rope, so that its replacement will only be necessary when the rope is replaced.

It will be obvious that the construction employed is capable of a certain range of change and modification without materially departing from the spirit of the invention and I accordingly do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. The combination with a rope to cable splice in which the cable is laid as a core to the rope and is reduced in size intermediate the ends of the splice and the ends of the rope strands are reduced in order that the splice may taper at its upper end from its largest diameter to the diameter of the cable, of a flexible sleeve surrounding and fitting the splice from the lower end of the taper to a point slightly below the lower end of the cable and fitting about the rope, said tube having at its upper end flexible extensions adapted to be wound upon and to cover said tapered portion, and a tapered cap fitting over the tapered portion and the cover provided by said flexible extensions.

2. The combination with a rope to cable splice in which the cable is laid as a core to the rope and is reduced in size intermediate the ends of the splice and the ends of the rope strands are reduced in order that the splice may taper at its upper end from its largest diameter to the diameter of the cable, of a flexible sleeve surrounding and fitting the splice from the lower end of the taper to a point slightly below the lower end of the cable and fitting about the rope, said tube having at its upper end flexible extensions adapted to be wound upon and to cover said tapered portion, and a tapered cap fitting over the tapered portion and the cover provided by said flexible extensions, said tube being at least in part of fabric of which the flexible extensions are an integral continuation.

3. The combination with a rope to cable splice in which the cable is laid as a core to the rope and is reduced in size intermediate the ends of the splice and the ends of the rope strands are reduced in order that the splice may taper at its upper end from its largest diameter to the diameter of the cable, of a flexible sleeve surrounding and fitting the splice from the lower end of the taper to a point slightly below the lower end of the cable and fitting about the rope, said tube having at its upper end flexible extensions adapted to be wound upon and to cover said tapered portion, and a tapered cap fitting over the tapered portion and the cover provided by said flexible extensions, said tube being of rubber and having a fabric core of which the flexible extensions are an integral continuation.

4. The combination with a rope to cable splice in which the cable is laid as a core to the rope and is reduced in size intermediate the ends of the splice and the ends of the rope strands are reduced in order that the splice may taper at its upper end from its largest diameter to the diameter of the cable, of a flexible sleeve surrounding and fitting the splice from the lower end of the taper to a point slightly below the lower end of the cable and fitting about the rope, said tube having at its upper end flexible extensions adapted to be wound upon and to cover said tapered portion, and a tapered cap fitting over the tapered portion and the cover provided by said flexible extensions, the lower end of the tube tapering to correspond to the tapering of the splice resulting from reduction in diameter of the cable.

5. The combination with a rope to cable splice in which the cable is laid as a core to the rope and is reduced in size intermediate the ends of the splice and the ends of the rope strands are reduced in order that the splice may taper at its upper end from its largest diameter to the diameter of the cable, of a flexible sleeve surrounding and fitting the splice from the lower end of the taper to a point slightly below the lower end of the cable and fitting about the rope, said tube having at its upper end flexible extensions adapted to be wound upon and to cover said tapered portion.

6. The combination with a rope to cable splice in which the cable is laid as a core to the rope and is reduced in size intermediate the ends of the splice and the ends of the rope strands are reduced in order that the splice may taper at its upper end from its largest diameter to the diameter of the cable, of a flexible sleeve surrounding and fitting the splice from the lower end of the taper to a point slightly below the lower end of the cable and fitting about the rope, said tube having at its upper end flexible extensions adapted to be wound upon and to cover said tapered portion, and having a fabric core of which the flexible extensions are an integral continuation.

In testimony whereof I hereunto affix my signature.

SAMUEL E. CARNEY.