W. P. HEALEY.

Splices for Wire-Ropes.

No. 219,860. Patented Sept. 23, 1879.

FIG. 1

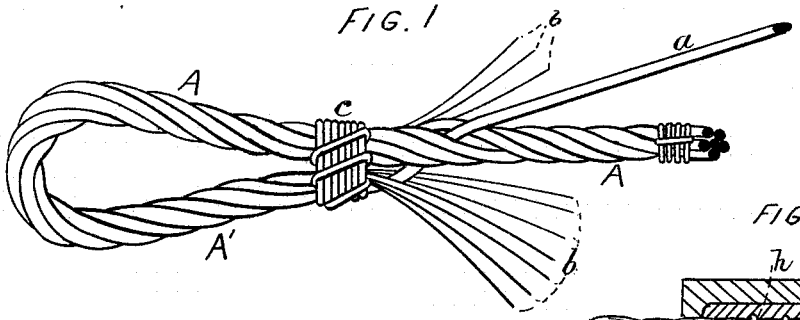



FIG. 6

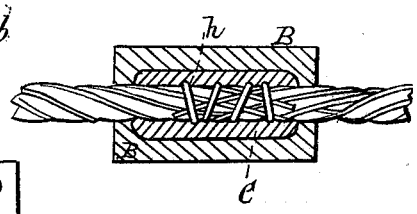



FIG. 2

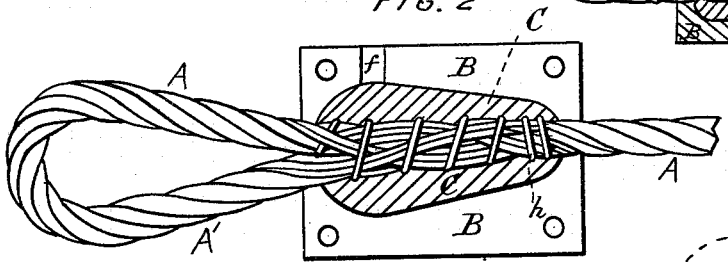



FIG. 7

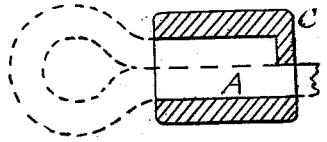



FIG. 3

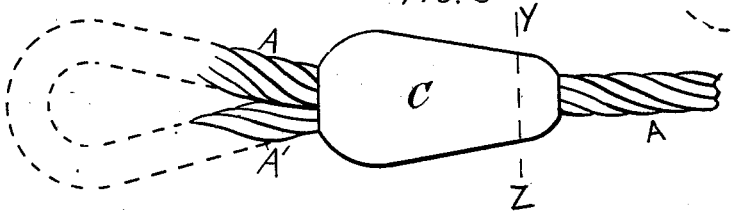



FIG. 5

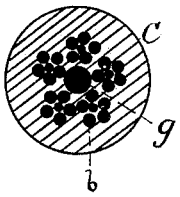
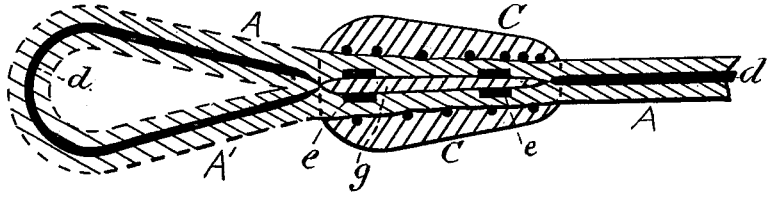



FIG. 4




WITNESSES.

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# UNITED STATES PATENT OFFICE.

WILLIAM P. HEALEY, OF NEW ORLEANS, LOUISIANA.

## IMPROVEMENT IN SPLICES FOR WIRE ROPES.

Specification forming part of Letters Patent No. **219,860**, dated September 23, 1879; application filed May 21, 1879.

*To all whom it may concern:*

Be it known that I, WILLIAM P. HEALEY, of New Orleans, State of Louisiana, have invented a new and useful or Improved Splice for Wire Rope, of which the following is a specification.

The object of my invention is to furnish a durable splice in wire rope by the use of a fusible metal for fastening the parts, thereby obviating the complicated or repeated tucking of the strands, the hemp heart being removed at the splice and the rope kept expanded by inserting short sections of metal tubes opposite the ends of the molds into which such fusible metal is poured. In splicing large rope two of the strands may be tucked through the standing part of the rope for the purpose of bringing the strands in better position for tapering, the other wires being cut off at different lengths and fastened down along the standing part by winding with a wire.

In forming the short or end-to-end splice, the strands only are unlaid from the rope, the wires of the strands not being unlaid, the strands of the two parts being crotched together without tucking. The strands are then wound or woolded with a wire. And in forming the end-seizing splice the end of the rope may be merely turned up and stopped with a wire alongside the standing part of the rope, without tapering the end of the turned-in part.

When the rope is prepared in any of the described or other methods, the splice is placed in a suitable mold and the melted metal poured therein, which penetrates the interstices between the wires, and also forms a coating or sleeve around the body of the rope.

Figure 1 is a plan view of a section of rope, showing the method of interlocking or tucking the wires through the body of the standing part when making an eye-splice in large ropes. Fig. 2 is also a plan view of the rope, and of one half of the mold in position upon the rope, as when the metal is applied therein. Fig. 3 is a plan showing the rope with the completed splice. Fig. 4 is a longitudinal section of the rope and completed splice, and showing the hempen core where it is not removed, and the applied metal in place of the hemp core where the same has been removed, and also showing the sections of tubing as inserted to keep the rope expanded. Fig. 5 is an enlarged transverse section taken on line *y z*, Fig. 3, and showing the applied metal within the interstices of the wires and strands, which latter are shown in black. Fig. 6 is a modification, showing the rope in plan, with an end on splice, the applied metal and the mold being shown in longitudinal section. Fig. 7 is also a modification, showing an eye-splice formed without tapering the turned-in part, the rope being shown in plan, and the applied metal in longitudinal section.

In these figures, A is the standing part of the rope, and A′ the turned-in part. B is the mold, and C the soft metal as applied to the rope in the mold.

*a* represents a strand as tucked through the body of the standing part when large ropes are spliced by my method.

*b b* are the unlaid wires, which are cut at varying lengths when it is desired to form a tapering splice.

*c* is the woolding, which is temporarily applied to hold the parts in position while the strands are being adjusted and the wire *h* is being wound in place.

*d* represents the hemp core in the rope, and *g* is the metal which fills the space where the core has been removed.

*f* is the gate through which the metal, C, is poured to the rope in the mold, and *e e* are the sections of tubing that hold the strands apart after the core is removed.

In said Figs. 1, 2, 3, 4 the rope is shown with an eye-splice gradually tapered down to the size of the rope. In Fig. 6 both parts of the mold are shown, the section being taken transversely to the line between such parts. In Fig. 7 an eye-splice is shown formed without being either interlocked or tapered.

Various kinds of soft metal may be employed in forming my splice, such as brass, "Babbitt metal," and other mixtures; yet I deem what is known to the trade as "Babbitt metal" equal, if not superior, to any other for such purpose.

The adhesion of the fused metal to the wires, as well as the close contact of the outer body, C, of such metal to all the inequalities of the several strands, and the connection of such body C with the heart *g* by means of the

metal between the wires and strands, is such that by actual tensile test the best wire rope will part at other points than in the splice so made. My splice is also compact, indestructible, and does not injure hemp or Manila rigging when rendered across it; besides, this splice can be made by any one, though not a competent and skillful rigger.

I claim as my invention—

1. In a wire-rope splice, the sections *e*, to hold the strands of the rope expanded where the hemp core *d* is removed, to allow the metal *g* to fill such space, substantially as specified.

2. The process hereinbefore described of splicing a wire rope, the same consisting in the formation of a longitudinal cavity in the center of the rope by the removal of its hempen core, and casting, by means of a suitable mold, about the ends to be united, and in the cavity in each, molten fusible metal, so as to form a sleeve around the splice, the metal within said sleeve being incorporated with the wire rope and filling its core, and forming with the rope and sleeve a solid mass capable of resisting any strain the rope will bear, all in the manner set forth.

WILLIAM P. HEALEY.

Witnesses:

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