

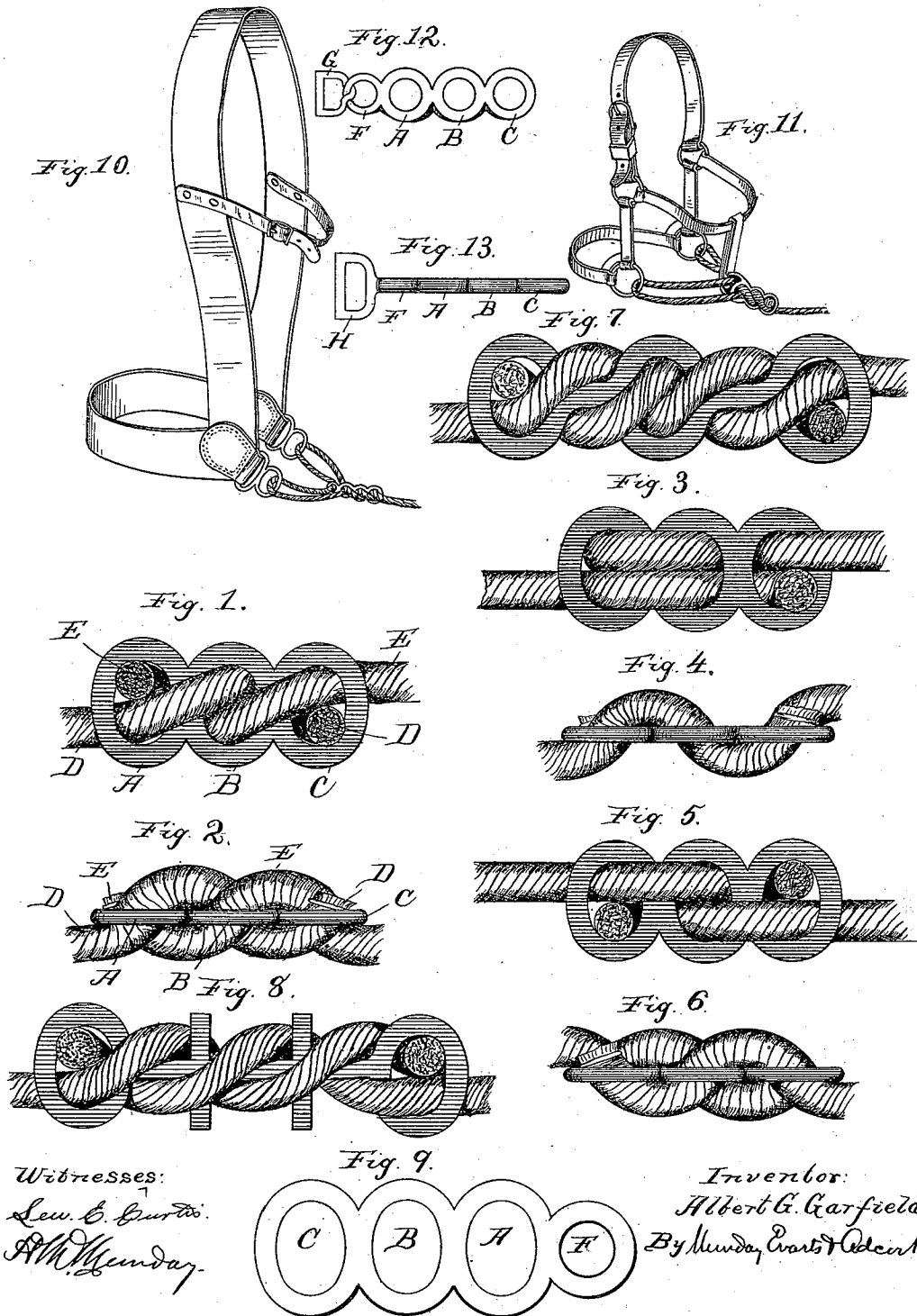
(No Model.)

A. G. GARFIELD.

ROPE SPLICE.

No. 356,116.

Patented Jan. 18, 1887.



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# UNITED STATES PATENT OFFICE.

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## ROPE-SPLICE.

SPECIFICATION forming part of Letters Patent No. 356,116, dated January 18, 1887.

Application filed September 9, 1886. Serial No. 213,090. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT G. GARFIELD, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Rope-Splices, of which the following is a specification.

This invention relates to a method of securing or splicing one piece of rope to another by the aid of a metallic clamp-piece in such manner that the two parts may be quickly united together, will be securely held when united, and may be readily disunited and separated without injury or disfigurement of the rope.

The mode of operation and details of my improved splice will be understood from the following specification, in conjunction with the accompanying drawings, which form a part thereof, and in which similar letters of reference indicate like parts.

In said drawings, Figure 1 is a plan view of my improved splice. Fig. 2 is a side view of the same. Figs. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13 are views showing various modifications of both the metallic splice-piece and manner of threading and using the same.

The metallic splice-piece—which, in connection with the ends of the ropes threaded there-through, constitutes my improved splice—I make of any ordinary metal which shall possess sufficient rigidity to prevent buckling or collapse under the strain of the rope. I find that cast-brass or malleable iron is the best material for this purpose, although ordinary cast-iron will generally prove strong enough.

The splice-piece consists of three or more oblong rings, A B C, rigidly joined together side by side. The oblong aperture in the rings should be large enough to receive and accommodate snugly side by side two plies or pieces of the rope to be spliced, and hence the metallic splice-pieces should be cast in different sizes to suit ropes of different diameter.

To splice a rope, I bring the two ends D and E together and thread the end D up through the ring A, down through the ring B, and up again through the ring C. The end E, I thread up through the ring C, down through the ring B, and up through the ring A, taking care to cross the rope D with the rope E, so that the end E shall pass into the end C, say, at the left-hand side of the end D, into the ring B at

the right-hand side, and into the ring A at the left-hand side, as shown at Figs. 1 and 2 of the drawings. This gives the two ropes the appearance of being twisted together, as well as interbraided with the splice-piece, and constitutes the best and strongest form of my improved splice. The ropes, in fact, pass through the splice-piece in opposite spiral direction. As a modification of threading the rope, however, possessing some of the advantages of my invention, I may thread the ends as shown in plan and side elevations at Figs. 3 and 4, or as shown in plan and side elevations at Figs. 5 and 6, which will be understood sufficiently from the drawings without explanation.

It is not absolutely necessary that the apertures through the rings should be oblong in form, although that is the best form. They may be of any other shape to secure the ropes.

So, too, a greater number than three of the rings may be employed, and it is advisable where the splice is to be used upon rawhide ropes or upon ropes of a very smooth surface and pliable character to employ more than three rings. Nor is it necessary that the rings, other than the ones at each end, shall be complete in outline. Thus in Fig. 7 I show a splice-piece which contains the equivalent of five rings, three of which are complete in outline, including the two end rings, and two of which are composed of the sides of the three rings separated from each other by a central stay or bar, forming thus, so to speak, three rings and two double notches. This constitutes a very strong and efficient splice when the rope is threaded in the manner shown in said figure, and while the grip of this form of splice is not quite so strong as it would be if five complete rings had been employed, this deficiency is in some measure compensated for by the greater ease with which it is threaded.

At Fig. 8 another modification is illustrated, the chief advantage of which is the great ease with which the splice may be made and unmade. In this modification the central bar is extended from one end ring to the other, and the place of the middle ring of Fig. 7 is taken by two cross-bars.

As it is sometimes desired to secure a third rope to the splice, I contrive to do this by casting upon the splice-piece at some point—say at the end—an extra ring or holder, F, as

shown at Fig. 9. This enables me to use my improved splice in the halter shown at Fig. 10, which is a form of halter heretofore patented to me. A modification of the form of the holder F, as shown at Fig. 11, enables me to use my splice upon the kind of halter shown in that figure, in which the holder encircles both the bight of the rope-loop and a bolt sewed into the throat-piece of the halter. Instead of the bolt sewed into the throat-piece, as at Fig. 11, a loose D-link, G, may be employed, as shown at Fig. 12, or a rigid D-link, H, as shown at Fig. 13.

My improved splice is specially adapted, it will thus be seen, to use on halters, by reason of the fact that attachments may be so readily made to the same; but it is likewise adapted to use in any situation where the bight of the rope and its end or two rope ends are desired to be secured or spliced without a knot.

I am well aware that heretofore metallic halter attachments have been made, such as shown in Letters Patent No. 244,555, dated July 19, 1881, and consisting of an oblong metal plate having a series of holes through it adapted to receive a single thickness of rope for the purpose of acting as a clamp; and

I do not claim such a device, as it does not contain my invention—the improvement in rope-splices herein described.

I claim—

1. The rope-splice composed of a metallic splice-piece consisting of three or more rigid rings or their equivalents and the two ropes threaded through said rings, substantially as specified.

2. The metallic splice-piece consisting of three or more rings or their equivalents, having the apertures therein with the greatest diameter or space to receive the ropes lying in a direction at right angles to the length of the splice-piece, substantially as shown in the several figures of the drawings herein, and whereby two ropes may be threaded through, side by side, or spirally intertwined therethrough and spliced.

3. The combination of the metallic splice-piece described and the two ropes threaded through the same spirally in opposite directions, substantially as specified.

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