Sept. 13, 1949. W. A. MEIGHAN 2,481,610

TERMINAL FITTING

Filed May 22, 1944 2 Sheets-Sheet 1

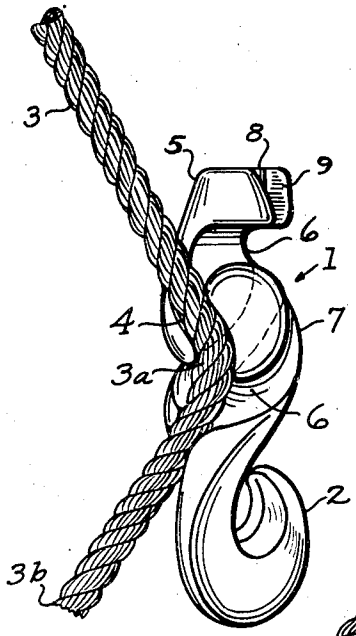


Fig. 1.

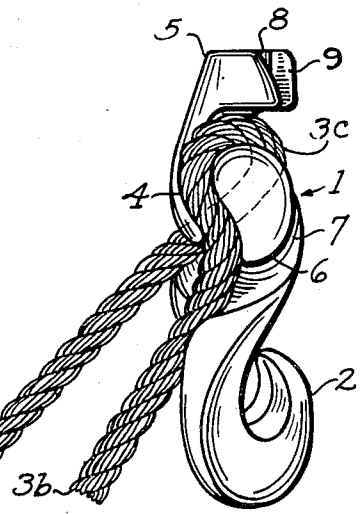


Fig. 2.

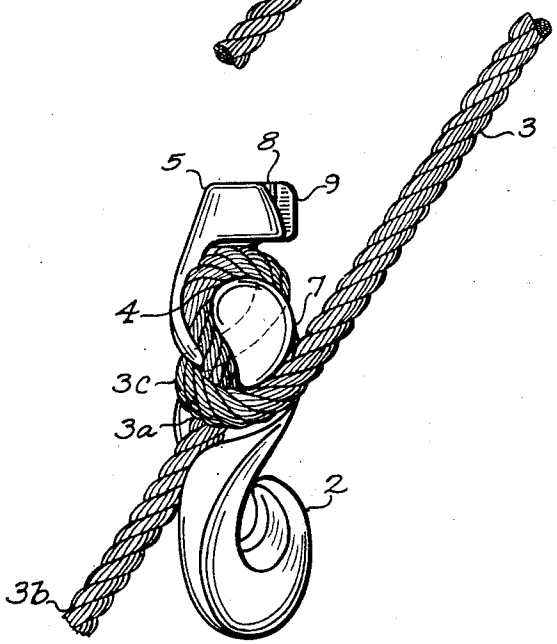


Fig. 3.

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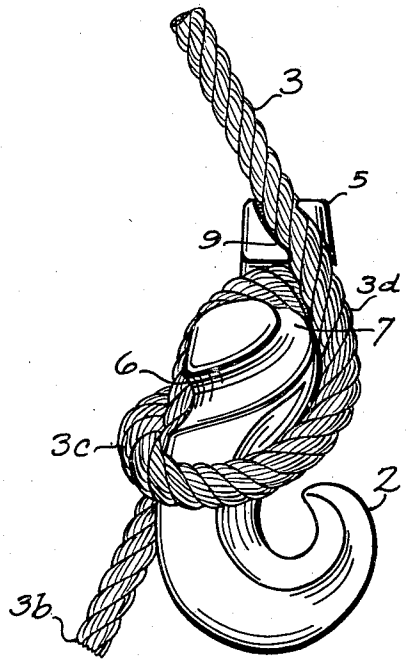


Fig. 4.

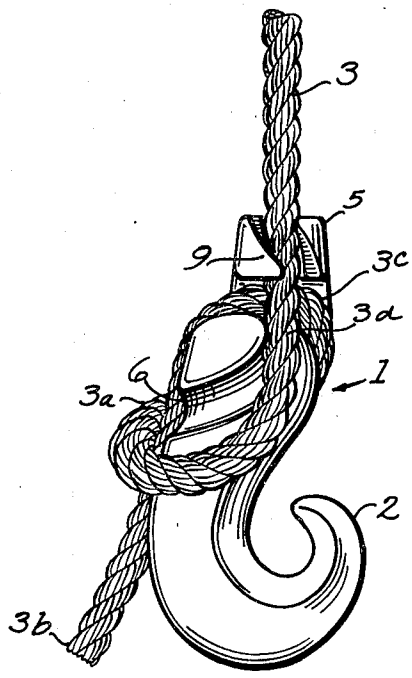


Fig. 5.

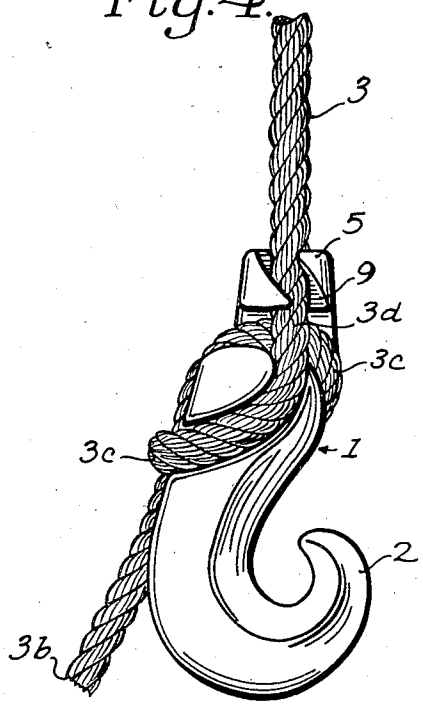


Fig. 6.

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UNITED STATES PATENT OFFICE

2,481,610

TERMINAL FITTING

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Application May 22, 1944, Serial No. 536,684

3 Claims. (Cl. 24—129)

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The object of my invention is to provide a terminal fitting for a rope which is so constructed and arranged that one end of a rope may be bound thereto securely and efficiently without requiring a splice to be made or without requiring that a tight knot be formed in said end of the rope. Fastening may be effected, also, without requiring that the end of said rope be threaded longitudinally through an eye. This type of fitting has particular use in connection with ropes used for whipping down heavy loads or in making connections in the field quickly and without the use of tools.

My invention is particularly useful in connection with wire rope, which is relatively stiff and elastic, and which resists being bound about bodies which deform said rope from a straight line. The stiffness and elasticity of said rope tend to hold it from falling in place. It is particularly difficult to anchor the extreme end of the rope to initiate the making of any securing hold on a body. It is essential, also, that said rope leave the body to which it is secured by one end in more or less of a straight line, so that said rope will not be subject to flexure or wear over an edge in the bight of the line.

I attain this object by the use of a terminal fitting having an external groove adapted to form a relatively sharp reverse bend in the end of the rope and then to lead said rope helically about said body. It is then formed into a course extending substantially longitudinally of said fitting so that it leaves said fitting substantially in a straight line. Said course, in making said several convolutions, intersects itself more than once, so that the rope itself tends to bind and hold the convolutions of the rope tightly in place.

Further and other details of my invention are hereinafter described with reference to the accompanying drawings, in which:

Fig. 1 is an elevation of a terminal fitting embodying my invention, illustrating the manner in which the end of a rope is first formed in a reverse bend initially to secure said rope to said fitting;

Fig. 2 is a similar elevation, illustrating the manner in which said rope may then be bent into a helical turn about said body;

Fig. 3 is a similar view in which said helical turn is caused to pass over the reversely bent rope to bind it in place;

Fig. 4 is a view of said fitting turned slightly to illustrate how the helical portion may merge into a longitudinal course with the rope shown quite slack;

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Fig. 5 is a view illustrating how the rope may be pulled lengthwise after it is passed through a slot leading into a rope-engaging eye; and

Fig. 6 is a similar view, showing the fastening fully made and with the rope lying within the several convolutions of the groove and forming a secure fastening to said terminal fitting.

A terminal rope fitting 1 embodying my invention may be formed with any load-engaging element, and in the accompanying drawings I have shown it formed with a hook 2. It is to be understood, however, that it might be formed with a pair of spaced eyes, such, for example, as with a clevis or shackle, or it might be formed with any type of connection adapted to be secured to a load.

In securing said fitting to a rope 3, I preferably engage the rope at a point 3*a*, spaced substantially from the extremity 3*b*, so that if the parts should slide slightly in forming the looped engagement, the end will not be pulled free. In practice, however, the rope does not slide any appreciable degree. The rope is first formed with a relatively sharp bend at 3*a*, lying in a correspondingly shaped recess 4, as viewed in Fig. 1. The rope may then be wound about the body of the fitting in spiral form, underlying the eye or rope-securing member 5, and downwardly to a point where it overlies the rope at the bent portion 3*a*.

This section of rope 3*c* extends substantially the entire distance about the circumference of the rope fitting lying in recess 6. Said recess merges gradually upwardly towards said eye in a straight recess section 7, extending longitudinally of the body toward and through the bore 8 of said eye or rope-securing member 5. Said straight section of rope 3*d* overlies the spiral section 3*c*, as is shown most clearly in Figs. 4 to 6, inclusive.

Passing radially through the eye 5 and into the bore 8 thereof, is a slot 9. Said slot is inclined obliquely to the major axis of the elongated rope fitting. Thus, said straight section of rope must first be inclined to aline with said slot, in the manner shown in Fig. 4, until it enters the bore 8, as is shown in Fig. 5. Then, when tension is applied to said rope, it is pulled tightly into section 3*d*, and the merging part with section 3*c* falls into line, as is shown in Fig. 6.

It can thus be seen that said terminal fitting can be bound to one extremity of a rope without forming a tightly knotted connection and without requiring that said rope be threaded endwise through any eye or aperture.

When I use the word "rope," I am primarily concerned with a wire or similar stranded rope. It is quite stiff and resists distortion or flexure. The ends, also, tend to fray, so that an end can be threaded through a closely fitting aperture only with difficulty, and only if the free and frayed ends have been cut away or whipped tightly in place. In wire rope of—say—from three-eighths to five-eighths diameter, said knot may be loosely formed by hand, and it will fall tightly in position when only slight tension is applied to the rope. On larger diameter lengths of wire rope, the loop may be roughly formed after the section *3a* is fitted in place.

I deem it quite important that the end be locked on the fitting with some reverse bend, such as at *3a*, so as to prevent the wire from slipping or creeping when tension is later applied to bring the various sections into place in their recesses. Said reverse bend, as at *3a*, tends to provide the pinch or bind which makes said fastening practical, although the overlying courses also aid in holding said fastening secure. It is also to be noted that the extremity *3b* is "kicked off" at an oblique angle from the major longitudinal dimension of the terminal rope fitting, due to the bend at *3a*, and thus, is inclined out of the way so as not to interfere with the fastening of a load to the hook **2** or other load-fastening device.

It is not essential that the recesses be very deep, although from a practical standpoint, it is desirable that the rope lodge substantially in said recesses in the manner shown in the drawings, so that the overall diameter of the terminal fitting with the rope in place will not produce a large knob-like mass. Said recesses must be sufficiently deep, however, at **4**, for example, to lock the reverse bend portion *3a* in place, and it is desirable that the other recesses be of comparable depth to promote uniformity, even though other sections, such as *3c* and *3d*, overlie other portions of the rope.

I claim:

1. A terminal rope fitting having an elongated body with an engaging element arranged at one end thereof and a rope securing member at the other, an externally formed rope receiving recess arranged intermediate said ends, said recess defining first a reverse bend, then a helical course about the body, and then a longitudinally extending course leading toward said rope securing member, said recessed courses intersecting each other at more than one point, whereby a rope can be secured to said fitting without being tied into a tight knot.

2. A terminal rope fitting having an elongated body with an engaging element arranged at one end thereof and a rope securing member at the other, an externally formed rope receiving recess arranged intermediate said ends, said recess defining first a reverse bend, then a helical course about the body, and then a longitudinally extending course, leading toward and through said rope securing member, said recessed courses intersecting each other at more than one point, said rope securing member being annular and having a radially disposed slot extending therethru, through which slot said rope may be passed laterally, whereby a rope can be secured to said fitting without being tied into a tight knot and without being threaded longitudinally through an eyed portion thereof.

3. A terminal rope fitting having an elongated body with an engaging element arranged at one end thereof and a rope securing member at the other, an externally formed rope receiving recess arranged intermediate said ends, said recess defining first a reverse bend, then a helical course about the body, and then a longitudinally extending course leading toward and through said rope securing member, said recessed courses intersecting each other at more than one point, said rope securing member being annular and having a radially disposed slot extending therethru, through which slot said rope may be passed laterally, said slot being obliquely disposed with respect to the longitudinal dimension of said fitting, whereby a rope can be secured to said fitting without being tied into a tight knot and without being threaded longitudinally through an eyed portion thereof.

WILLIAM A. MEIGHAN.

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