Jan. 18, 1966 P. J. MARAS 3,229,341

CABLE FERRULE

Filed April 17, 1963

Fig. 1

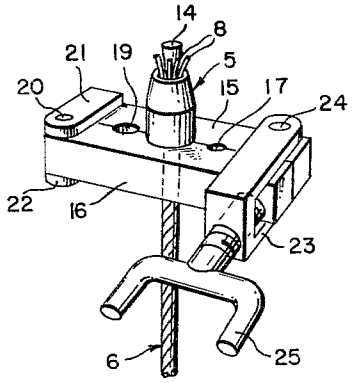
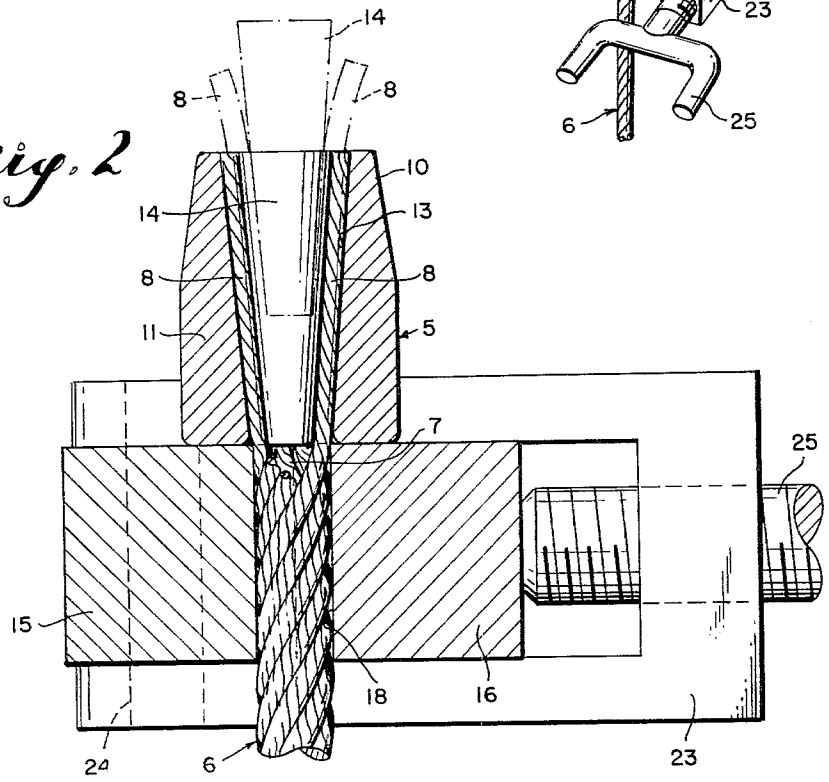


Fig. 2



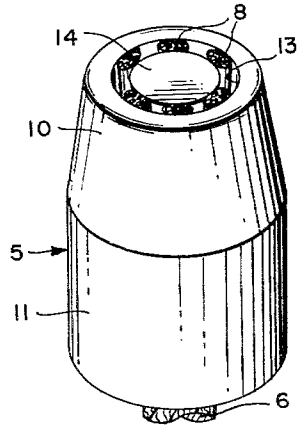


Fig. 3

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CABLE FERRULE

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1 Claim. (Cl. 24—122.6)

This invention relates to ferrules designed for attachment to wire rope, and has for its object to provide a ferrule which can be attached to the rope with unusual ease and expedition, permitting such attachment to be performed on the job with only a hammer and pliers as tools, one which holds firmly when applied with no liability of being freed in use but which, for reclaiming, can be easily and repetitively removed from worn rope and attached to a new rope without in any way damaging the component parts, and one in which there are only two of such components each characterized by a configuration which is inexpensive to produce.

These and yet additional objects and advantages in view will appear and be understood in the course of the following description and claim, the invention consisting in the novel construction and in the adaptation and combination of parts hereinafter described and claimed.

In the accompanying drawing:

FIGURE 1 is a fragmentary perspective view illustrating a ferrule emboding the teachings of the present invention in process of being attached to a wire rope, and showing a simple portable type of vise serving as a mounting for the rope and ferrule as the attachment is being performed.

FIG. 2 is a fragmentary transverse vertical sectional view of said wire rope, ferrule, and vise, and portraying, by broken and full lines, respectively, the positions occupied by a wedging pin at the initiation and the termination of an attaching operation; and

FIG. 3 is a fragmentary perspective view showing the ferrule as it appears when attached to the rope.

Referring to said drawing, the numeral **5** denotes a barrel which is desirably cast from steel. Designated by **6** is a wire rope. The wire rope, as here shown, provides a core **7** with six outside strands **8**.

The nose portion **10** of the barrel tapers inwardly while the back portion **11** is or may be cylindrical, and provided by the barrel is a tapered through-bore **13** having its larger diameter at the front end. A smooth-faced wedging pin **14** of frustro-conical configuration complements the barrel to form the ferrule. This pin has a taper, angularity considered, the same as that of the bore and is adapted to be received in said tapered bore. Said pin has a length corresponding to that of the barrel and its diameter is such that when centered in the bore with its ends flush with the ends of the barrel there is described between the external surface of the pin and the internal surface of the bore a space moderately narrower than the diameter of the wire strands which compose the rope.

To fix the ferrule (comprised of the barrel and its wedging pin) to the rope, the latter is cut off square and such cut end is pushed through the bore of the barrel from the small end of the bore until a length of the rope somewhat longer than the barrel is exposed beyond the barrel. Such exposed portion of the rope is unraveled and the core is cut back for a substantial distance. The barrel is now slipped outwardly on the unraveled strands until the severed end of the core lies at or about the base of the barrel, whereupon the pin is inserted from the wide end of the bore to occupy the space from which the core has been removed, positioning the unraveled strands at more or less equidistant intervals about the circumference of the pin. A hammer is then employed to drive the pin inwardly while firmly holding the rope against endwise motion. Upon completion of the driving action the pin is touching or approximately touching the severed core and has tightly compressed the unraveled strands between the pin and the wall of the bore. Any portions of the strands projecting beyond the barrel are cut off and the outer end of the applied ferrule is desirably coated with a suitable rust preventative.

As a means for holding the wire rope during application of the ferrule, and one which adapts itself to "on the job" usage, I have shown in the drawing a portable vise constructed much the same as the holder which is commonly used to grip copper tubing during a flaring operation. This vise should be fairly heavy so as to withstand the impact force of hammer blows and is comprised of two pivotally connected jaws **15** and **16** providing in their meeting faces a plurality of selectively used openings, as **17**, **18**, and **19**, which are adapted to fixedly clamp a related one of the three sizes of wire rope, say ⅜", 7/16" and ½". A pin **20** provides the pivot for the vise, being carried by straps **21** and **22** which are rigid with the jaw **15** and overlie top and bottom faces of the jaw **16** at one end of the vise. A yoke **23** overlies the top and bottom faces of both jaws at the free ends of the latter, is pivoted to the jaw **15** by pin **24**, and carries a wing-bolt **25** for forcefully pressing jaw **16** against jaw **15**. The barrel **5** seats upon an upper face of the vise while the tapered pin is being hammered into the functioning position in which it is shown by full lines in FIG. 2.

Should it be desired to remove and reclaim a ferrule, and a particular advantage of the invention is that the parts can be repetitively used, the wire rope is cut off close to the barrel and a punch is employed to drive the pin back and free same from the clamped wire strands.

It should be here noted that the tapered nose of the barrel of the ferrule permits the ferrule to be easily slipped under logs incident to the attachment of a choker line. The tapered nose is furthermore advantageous when reclaiming a ferrule in that it permits a mating open-bottom socket to be employed as a localizing rest for the barrel when driving a pin back out of the same.

It is believed that the invention will have been clearly understood from the foregoing detailed description of my now-preferred illustrated embodiment. Changes in the details of construction may be resorted to without departing from the spirit of the invention and it is accordingly my intention that no limitations be implied and that the hereto annexed claim be given the broadest interpretation to which the employed language fairly admits.

What I claim is:

The novel combination of a wire rope and a ferrule fitted on one end thereof, the ferrule comprising a center-bored barrel and a wedging pin, the rope being of the type having a core strand surrounded by a plurality of spirally wound outer strands, said end of the rope on which the ferrule is fitted having the outer strands unravelled and the core strand cut back each for a distance corresponding to the length of said bore of the barrel, the wedging pin being driven into the bore of the barrel to wedge the unravelled outer strands between the pin and the bore of the barrel, said bore being smooth-surfaced and tapering uniformly from one to the other end with said unravelled outer strands of the rope occupying the bore, entering at the small end thereof and being spread apart and caught between the pin and the wall of the bore at spaced intervals of the circumference of the bore, the cut-back end of the rope's center core lying outside the small end of the bore, the pin being smooth-surfaced with the same taper and approximately the same

length as that of the bore and having both its large and its small end flat, the size of said bore at its small end, the diameter of the outer strands of the rope, and the size of the pin at its small end being each such that when the unravelled outer strands are wedged tight by the driven pin the flat end face at the large end of the pin lies flush with the large end of the bore and consequently places the flat end face of the pin's small end flush with the small end of the bore, said described structure permitting a ferrule to be reclaimed by the expedient of cutting off the wire rope flush with the small end of the bore and driving the pin back through the barrel by thrust exerted from a hammer blow upon the then exposed flat face of the pin's small end, the exterior nose portion of the barrel tapering inwardly so that, when reclaiming a ferrule, said nose portion can be fitted in a mating open-bottom socket to produce a rest holding the barrel stationary against the imposed force of said hammer's pin-ejecting blow.

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