March 4, 1941. E. C. NOBLE 2,233,794

COUPLING

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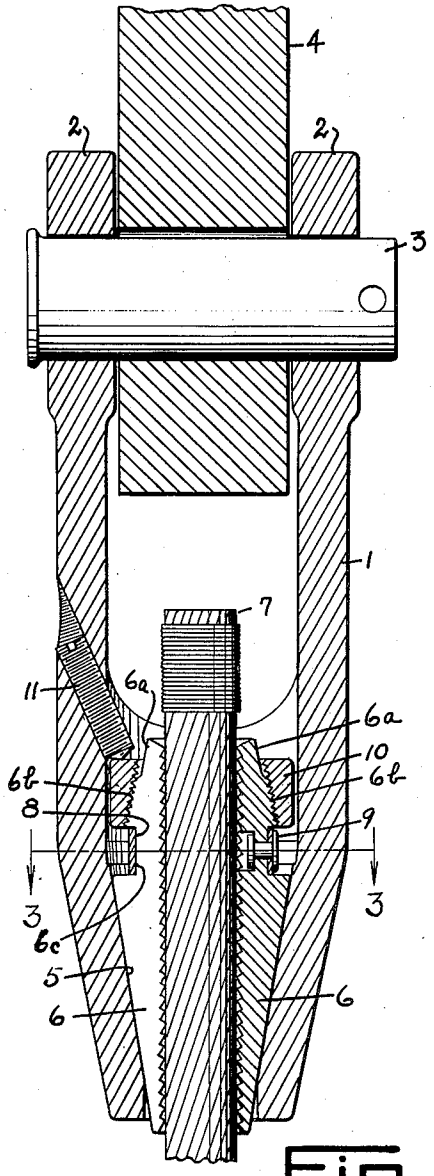


Fig. 1.

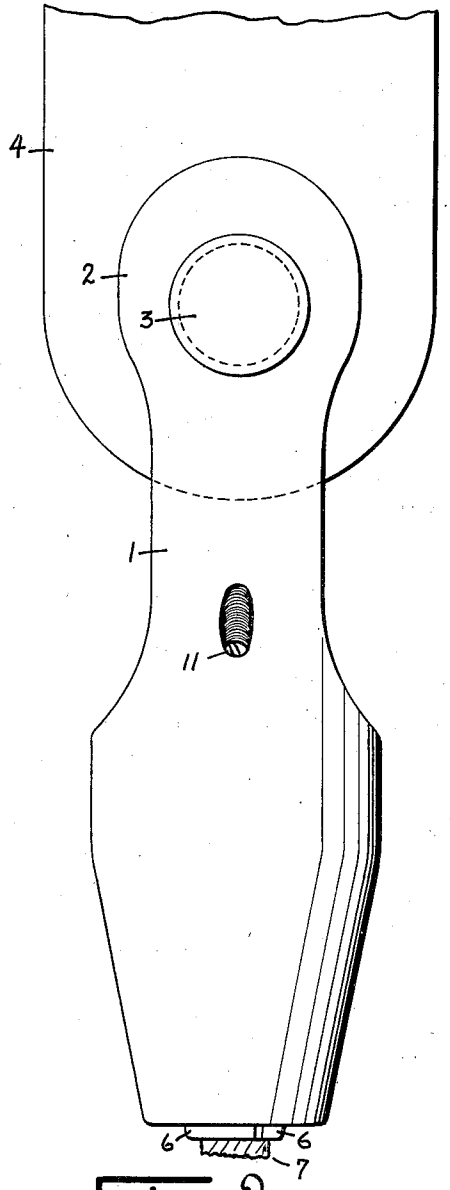


Fig. 2.

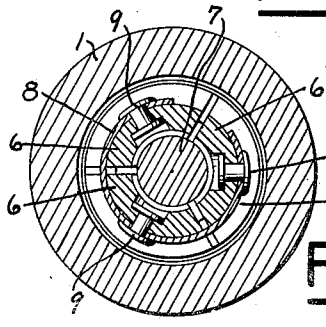


Fig. 3.

INVENTOR
EDWARD C. NOBLE.

By J. Vincent Martin
Ralph R. Browning
ATTORNEYS

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COUPLING

Edward C. Noble, Houston, Tex.

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8 Claims. (Cl. 24—126)

This invention relates generally to couplings, and specifically to that type embodying a sleeve and a plurality of wedges therein to grip and hold a cable or other element.

It has for one of its general objects the provision of new and improved resilient means to yieldably hold the wedges so that they may be swung away from each other to laterally receive the cable, and then released to embrace the cable in substantially circular alignment.

Another object is to provide new and improved means whereby the wedges may be positively locked on the cable independently of the sleeve.

A further object is to provide new and improved means to hold the assembly of wedges in the bore of the sleeve.

A further object is to provide a combination of said three means to the end that the wedges will be held together as a unit and yet yieldably so in order that they may be quickly and easily applied to and removed from the cable laterally rather than over the end of the cable; the wedges may be made to positively grip the cable before being placed in the bore of the sleeve so that the wedges and cable cannot be accidentally separated; and the wedge assembly is held against upward movement in bore of the sleeve.

A further object is to provide new and improved means that will prevent accidental separation of the parts and yet not interfere with the gripping of the cable by the wedges incident to movement of the wedges in the tapered bore when the cable is placed under tension.

Other objects will hereinafter appear.

The preferred embodiment of the invention is illustrated in the accompanying drawing wherein Fig. 1 is a sectional elevation of the coupling applied to the cable;

Fig. 2 is an elevation thereof at a right angle to Fig. 1; and

Fig. 3 is a transverse section on the line 3—3 of Fig. 1.

In the drawing, the sleeve is indicated at 1. It may be provided with a pair of arms 2 connected by a suitable pin 3 to the member 4 whereby it may be connected to any object.

The sleeve 1 has a tapered bore 5 for the reception of the wedges 6. The cable is indicated at 7.

Referring now to the preferred embodiment of the invention, it will be noted that the wedge members 6 have annular external grooves 6c for the reception of a C-shaped, resilient ring 8 riveted thereto as indicated at 9. When it is desired to apply the wedges 6 to the cable 7 the wedges may be swung away from each other, by reason of the resiliency of the ring 8, and may be moved laterally upon the cable and thereupon released to embrace the cable. The wedges may be removed from the cable by pulling them apart against the resistance of the yieldable ring 8 and then moving them laterally away from the cable. It will be obvious that by this arrangement the wedges are held together as a unit and may be quickly and easily applied to and removed from the cable.

The upper end of each of the wedges 6 is tapered as indicated at 6a and threaded as indicated at 6b. The ring 8 normally holds the wedges 6 in circuar alignment so that the tapered upper ends of the wedges form a sectional tapered threaded shank. Threaded on this shank is a locking ring 10. When the wedges are applied to the cable as above stated, the locking ring 10 may then be slipped over the end of the cable and screwed down upon the wedges to thereby force the wedges inwardly into a gripping engagement with the cable. As shown in Fig. 3, the wedges 6 are circumferentially and yieldably spaced from each other by the resilient ring 8. This permits inward movement of the wedges. The locking ring 10 serves to prevent accidental separation of the wedges 6 from the cable 7. The cable 7 is thereby locked in the wedges.

The cable 7 with the wedges locked thereon by the ring 10 may be moved downwardly into the bore 5 and then the set screw 11 may be screwed downwardly and inwardly into engagement with the locking ring 10 to hold the assembled parts in the sleeve. The set screw 11 is so disposed that it will hold the ring 10 in different vertical positions in the sleeve 1, and so if by reason of manufacturing tolerances or for other reasons the assembled parts in different couplings do not stop at precisely the same vertical position when placed in the bore of the sleeve the set screw 11 may be adjusted accordingly. The set screw 11 may also be utilized to exert a downward pressure upon the locking ring 10 to force the wedges 6 downwardly in the bore 5 to effect a further gripping of the cable 7.

From the foregoing it will be apparent that this invention provides means to quickly, easily and reliably lock the wedges on the cable and the cable in the sleeve before the cable is placed under tension and at all times when tension on the cable is removed. The connection of the cable and the sleeve is thereby effected independently of any force tending to pull the cable out of the bore—in either direction.

At the same time the elements just described do not interfere with the inward movement of the wedges 6 into further gripping engagement with the cable, when the cable, placed under tension incident to great loads, is moved downwardly in the sleeve. The wedges 6 then slide downwardly in the tapered bore 5 and inwardly into further gripping engagement with the cable 7.

The parts may be quickly disassembled by retracting the set screw 11, unscrewing and removing the locking ring 10, moving the slips 6 upwardly out of the bore 5 and then laterally away from the cable 7.

Various embodiments of the invention other than the preferred embodiment herein disclosed will be apparent to those skilled in the art.

I claim:

1. In a coupling, the combination with a sleeve having a bore, of a plurality of element gripping wedges to fit in said bore, a resilient ring connected to and yieldably holding each of said wedges to permit the lateral insertion of the element in said wedges and to then hold said wedges about said element in a substantially circular alignment; the upper end portions of said wedges being tapered and threaded to form a shank; a locking ring having threads to engage said shank and to positively move said wedges into engagement with the element independently of said sleeve; and a set screw in said sleeve movable downwardly and inwardly to engage said locking ring to positively hold said wedges in said bore; said wedges being free to move further into said bore to further engage said element when said element is placed under tension.

2. In a coupling, the combination with a sleeve having a bore, of a plurality of element gripping wedges to fit in said bore, the upper end portions of said wedges being tapered and threaded to form a shank; and a locking ring having threads to engage said shank and to positively move said wedges into engagement with the element independently of said sleeve; said wedges being free to move into said bore to further engage said element when said element is placed under tension.

3. In a coupling, the combination with a sleeve having a bore, of a plurality of element gripping wedges to fit in said bore, and a resilient ring connected to and yieldably holding each of said wedges to permit the lateral insertion of the element in said wedges and to then hold said wedges about said element in a substantially circular alignment; said wedges being free to move into said bore to further engage said element when said element is placed under tension.

4. In a coupling, the combination with a sleeve having a bore, of a plurality of element gripping wedges to fit in said bore, a locking ring engageable about said wedges to positively hold them in gripping engagement with an element independently of said sleeve, and a set screw in said sleeve movable downwardly and inwardly to engage said locking ring to positively hold said wedges in said bore; said wedges being free to move further into said bore to further engage said element when said element is placed under tension.

5. In a coupling, the combination with a sleeve having a bore, and a plurality of wedges to fit said bore, of means to yieldably connect said wedges together so that they may be moved apart to laterally receive an element; locking means to positively move said wedges into engagement with said element independently of said sleeve; and means to positively hold said wedges in said bore; said wedges being free for movement by the wall of said bore into further engagement with said element when said element is under tension.

6. In a coupling, the combination with a sleeve having a bore, and a plurality of wedges to fit said bore, of means to yieldably connect said wedges together so that they may be moved apart to laterally receive an element; and locking means to positively move said wedges into engagement with said element independently of said sleeve; said wedges being free for movement by the wall of said bore into further engagement with said element when said element is under tension.

7. In a coupling, the combination with a sleeve having a bore, and a plurality of wedges to fit said bore, of means to positively move said wedges into engagement with an element independently of said sleeve, and to permit said sleeve to move said wedges into further engagement with said element when said element is placed under tension.

8. In a coupling, the combination with a sleeve having a bore, and a plurality of wedges to fit said bore, of resilient means to yieldably connect said wedges together so that they may be moved apart to permit said wedges to be moved laterally about an element, and then released to embrace said element.

EDWARD C. NOBLE.