(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 160 509**
A2

(12) # EUROPEAN PATENT APPLICATION

(21) Application number: **85302883.5**

(51) Int. Cl.⁴: **E 04 C 5/12**

(22) Date of filing: **24.04.85**

(30) Priority: **24.04.84 GB 8410477**

(43) Date of publication of application:
06.11.85 Bulletin 85/45

(84) Designated Contracting States:
AT BE CH DE FR GB IT LI LU NL SE

(71) Applicant: **CCL SYSTEMS LIMITED**
Cabco House Ewell Road
Surbiton Surrey KT6 7AH(GB)

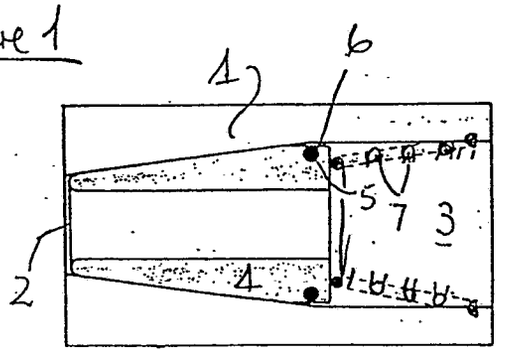
(72) Inventor: **Brearley, David**
81 Highfield Close Lower Wortely
Leeds 12 West Yorkshire(GB)

(74) Representative: **Shaw, Laurence**
George House George Road
Edgbaston Birmingham B15 1PG(GB)

(54) **Anchor grip for tensioned elements in concrete structures.**

(57) An anchor grip for use in tensioning an elongate element for a prestressed concrete structure comprises an elongate barrel (1) open at both ends (2,3), containing a wedge gripping device (W), a taper spring (7) being biased at one end against the head (H) of the device (W) and at the other end against an inside wall (8) of the barrel. After a connection has been made within the barrel (1) (Figure 2), the head (H) of the device (W) is visible from one end (3) of the barrel (1) for an operator to see that a proper connection has been made.

Figure 1



EP 0 160 509 A2

ANCHOR GRIP FOR TENSIONED ELEMENTS IN CONCRETE STRUCTURE

The invention relates to an improved anchor grip of the type useful in tensioning the wires, rods or stranded elements in prestressed concrete structures, and in particular is an improvement in or modification of the anchor grip described in British patent 1018967. That patent discloses an anchor grip comprising a body formed with a centre bore, a wedge device consisting of a plurality of tapered wedge elements arranged adjacent one end of the body and within the central bore to engage the wire to be gripped, a detachable plug provided at the other end of the body, a compression spring between the plug and the larger end of the wedge elements, wherein a cap member for maintaining axial alignment of the wedge elements is arranged between the spring and the larger ends of the elements, the cap comprising an annulus which is freely movable in the central bore.

This known anchor grip is marketed as the CCL XL enclosed grip for strand (CCL is a registered trade mark). It is a commercially successful grip but there is a drawback in that the cap is an extra item which adds to the cost and by its presence it is not easy to see whether the elongate element

has been gripped within the device.

It is one object of this invention to provide an anchor grip for the purpose specified, which is cheaper to make and easier and safer to use in that the operator can visually inspect the connection between the element and the gripping device within the barrel to ensure that a proper engagement has been made.

According to one aspect of this invention, there is provided an anchor grip for engaging an end portion of a length of wire or the like, the grip comprising an elongate barrel containing a wedge gripping device and a spring for retaining the device in the barrel, the barrel being open at both ends, characterised in that the spring is a taper spring of sufficient length to hold the device in the barrel and is biased at one end against the head of the device and at the other end against the wall of the barrel, and in that the head of the device is visible from one end of the barrel.

The wall of the barrel may be formed with abutment means better to engage the end turn of the spring and that wall. In a preferred feature the abutment means comprises a slot to receive the end turn of the spring.

In a preferred feature, the wall of the barrel in the region of the spring is sufficiently thick to allow the nose of a hydraulic jack to be abutted against that end of the grip whereby the connection of the element and the grip may be stressed.

In order that the invention may be well understood, it will now be described with reference to the accompanying diagrammatic drawing, in which

Figure 1 is a sectional view of one anchor grip, and Figure 2 is a sectional view of another anchor grip, in engagement with a length of wire.

Where possible the same reference numerals are used to describe the different embodiments.

The grip of Figure 1 comprises a barrel 1 having a central bore comprising a frustoconical bore portion 2 and a wider diameter cylindrical bore portion 3. The grip contains a wedge device W of a known type and comprising a number (2, 3 or 4) of tapering wedge segments 4. At their wider ends 4a the segments form the head H of the device W and are held together by an O-ring 5 received in a groove 6 in the segments. A taper spring 7, e.g. of the type available from Airedale Springs Limited, Yorkshire, England, is biased at

one end (the narrow end) against the head 4 of the wedge device W and at the other end against the inner wall of the bore part 3. A length of wire E, Figure 2, may be gripped by the grip by sliding the grip to engage clean wire to the desired location. Because the bore part 3 is open, an operator can visually inspect the grip by looking through the spring 7 to ensure that a proper engagement has been made between the wire and the device W. The wall of the bore portion 2 is sufficiently thick, e.g. 6 mm, to allow the nose of a hydraulic stressing jack, not shown, to be biased against it whereby the connection may be stressed.

In the embodiment of Figure 2, a slot 8 is present in the wall of the bore part 3 and the last end turn 9 of the spring 7 is anchored in the slot 8. The operator uses the grip as described in relation to the embodiment of Figure 1 and because the bore part 3 is open, he can see the engagement through the spring 7 to ensure that a proper connection has been made. For use in receiving a strand or other elongate element, E, 13 mm in diameter the grip may be about 76 mm long and 38 mm in external diameter.

CLAIMS

1. An anchor grip for engaging an end portion of a length of wire or the like, the grip comprising an elongate barrel (1) containing a wedge gripping device (W) and a spring (7) for retaining the device in the barrel (1) the barrel (1) being open at both ends (2, 3) characterised in that the spring (7) is a taper spring to hold the device (W) in the barrel (1) and is biased at one end against the head of the device (W) and at the other end against the wall of the barrel (1) and in that the head of the device (W) is visible from one end (3) of the barrel (1).

2. A grip according to Claim 1 characterised in that abutment means (8) is present at the wall of the barrel (1) and the adjacent end turn (9) of the spring (7) is abutted against the abutment means (8).

3. A grip according to Claim 1 or 2 characterised in that the abutment means (8) comprises a slot (8) and the end turn (9) is received in the slot (8).

4. A grip according to any preceding Claim characterised in

that the wall of the barrel (1) is thick so that a stressing jack may be biased thereon.

5. A grip according to any preceding Claim characterised in that the bore (2, 3) of the barrel (1) comprises a frusto conical portion (2) in which the gripping device (W) is located and a generally cylindrical portion (3) in which the spring (7) is located.

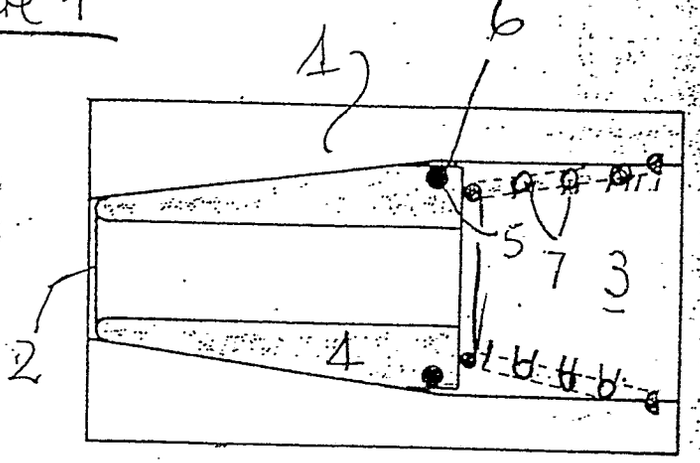
6. A grip according to any preceding Claim characterised in that the head (H) of the device (W) visible from one end (3) of the barrel (1) is formed of the wider ends (4a) of the segments of the device (W).

7. A grip according to any preceding Claim characterised in that the narrow end of the spring (7) is biased against the head (H) of the device (W).

8. A connection formed of an elongate element (E) and a grip characterised in that the grip is according to any preceding Claim and in that the connection of the element (E) and the device (W) is visible from one end (3) of the barrel (1) through the spring (7).

0160509

Figure 1



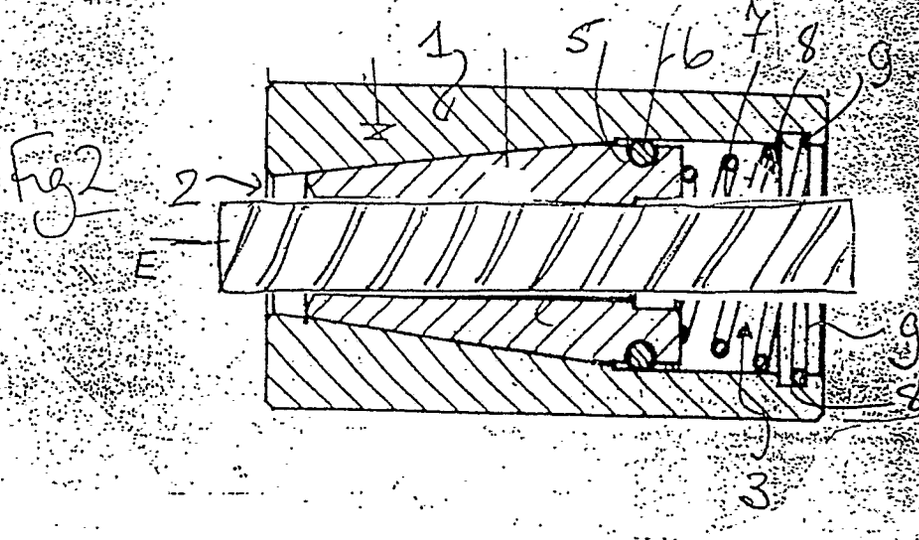


Fig 2