April 16, 1957 A. H. PILLING 2,788,652

CONCRETE ANCHORAGES

Filed Feb. 7, 1952

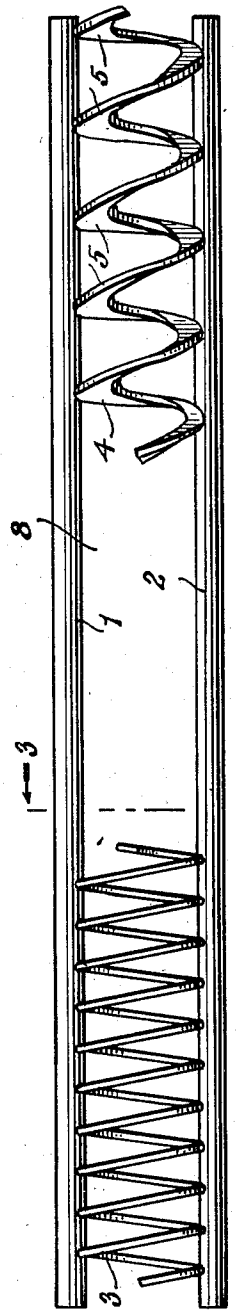


Fig. 1.

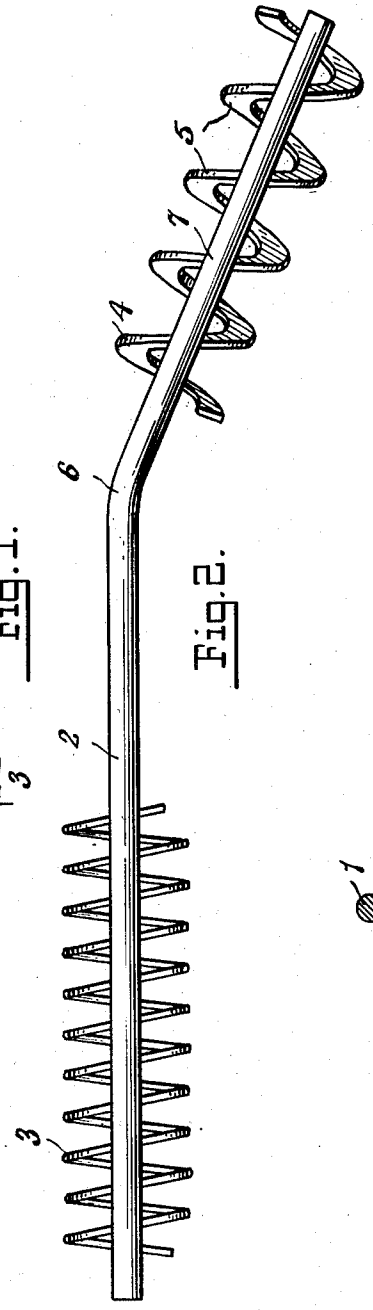


Fig. 2.

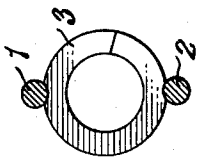


Fig. 3.

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United States Patent Office 2,788,652 Patented Apr. 16, 1957

2,788,652

CONCRETE ANCHORAGES

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Application February 7, 1952, Serial No. 270,459

2 Claims. (Cl. 72—105)

This invention relates to concrete anchorages, and more particularly to those of the type which, when placed in the concrete mass, will provide means for threadable engagement with a bolt or other screw-threaded element. In various types of concrete construction, it is often desirable to provide bolt-receiving means by which form parts can be maintained for progressive concrete pouring. It is desirable that such bolt-receiving means shall be firmly embedded in the concrete mass without being of such size therein as to occupy an objectionable amount of space and thus weaken the mass. This is particularly true of low quality concrete, or that in which the mix contains a relatively small proportion of cement.

It is therefore an object of the present invention to provide a concrete anchorage which will be particularly useful for placement in low quality concrete; which will afford a firm anchorage for a bolt or other threaded element and which will provide a maximum of resistance to displacement under strain or stress.

With these and other objects to be hereinafter set forth, in view, I have devised the particular arrangement of parts to be more fully described and set forth in the claims appended hereto.

In the accompanying drawing, wherein an illustrative embodiment of the invention is disclosed:

Fig. 1 is a top plan view of a concrete anchorage constructed in accordance with the invention;

Fig. 2 is a side elevation of the anchorage, showing the provision of an angular portion at one end thereof; and

Fig. 3 is a sectional view, taken on the line 3—3 of Fig. 1, looking in the direction of the arrows.

Referring to the drawing and to the embodiment therein shown, 1 and 2 indicate a pair of parallel metallic rods of suitable length, according to the body of concrete which is to surround them. Adjacent to one end of the parallel rods 1 and 2 is a spiral helix 3 which constitutes the bolt-receiving end of the anchorage. The spiral helix 3 is preferably, but not necessarily, formed of flat strip stock coiled into helical formation, with its convolutions properly spaced to engage the threads on the bolt or other threaded element that is threadably inserted within the helix. At its periphery the helix 3 has its convolutions secured to the two spaced rods 1 and 2 as by being securely welded thereto, such attachment of the helix to the rods acting to maintain the convolutions of the helix in the proper spaced relation to threadably receive the bolt.

Adjacent to the opposite end of the rods, and positioned between the same is a second helix, indicated at 4 which is employed for the sole purpose of materially aiding in the anchorage of the device in the concrete.

That is to say, the convolutions 5 of the helix 4 are spaced rather widely apart to permit of a maximum of concrete to enter between the convolutions and thus strongly resist axial or other displacement of the anchorage out of the concrete. The convolutions 5 of the helix 4 are preferably of greater pitch than those in the helix 3 and are not employed for engagement with the bolt or other threaded element that is inserted in the bolt-receiving helix 3.

The two helices 3 and 4 are shown as being of the same outside diameters to maintain uniform spacing between the rods 1 and 2. The inside diameters of the helices need not be the same.

In the form shown, the two helices 3 and 4 are shown as separated or spaced apart with an intervening space 8 between them. If desired, a single continuous helix might be employed, or one which extends continuously from one end of the rods to the other end and without interruption and having the pitch of the convolutions at one end greater than at the other end.

The two rods 1 and 2 between which the two helices are secured, can be perfectly straight, as seen in Fig. 1, or the same might be bent as at 6 to thereby provide an angular end portion 7, which latter portion 7 will receive the helix 4. In such an arrangement, any force exerted on the anchorage on a straight line along the axis of the helix 3 will be strongly resisted by the angular position of the opposite end of the anchorage.

To aid materially in providing resistance to displacement of the anchorage, it is preferable that the helix 4 shall be made of flat strip stock, thus providing relatively wide and flat surfaces on the faces of the convolutions 5 to strongly resist displacement. If the helix 3 is also made of flat strip material, that helix will also set up considerable resistance to displacement.

While I have herein stated that the anchorage shall employ two parallel rods between which the two helices are secured by being welded thereto, it will be appreciated that the number of rods between which the helices are attached may be increased according to the needs of the particular installation.

When the anchorage is placed in position and the concrete poured around it, the bolt-receiving end 3 is located adjacent one face of the concrete so that the bolt or other threaded element may enter to engage with the helix 3.

Having described one embodiment of the invention, it is obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claims.

What I claim is:

1. A concrete anchorage comprising a plurality of spaced parallel rods, a spiral helix formed of flat strip metal secured at its periphery between the rods, said spiral having its convolutions spaced apart to permit of the entry of concrete between them and to engage the flat surfaces of the convolutions, said convolutions being of a pitch to engage with the threads of a bolt inserted within the helix, a second spiral helix secured at its periphery between the rods, the second helix being also composed of flat strip metal and having its convolutions spaced apart for distances greater than the distances between the convolutions in the first helix, which spacing is such as to prevent engagement with the threads of the bolt, the second helix being free of the bolt and having a free and unencumbered axial passage and being

adapted for embedment in a concrete mass at a greater distance from the face of the mass than the bolt-receiving helix, the axial opening in the second helix permitting the concrete to enter as well as entering between the convolutions of the said helix.

2. A concrete anchorage as provided for in claim 1, wherein the rods are formed with a bend to thereby dispose the axis of the bolt-free helix at an angle to the axis of the bolt-receiving helix, which angle is less than a right angle.

References Cited in the file of this patent

UNITED STATES PATENTS

861,600	McCann	July 30, 1907
1,137,416	Mumford	Apr. 27, 1915
1,143,429	Mumford	June 15, 1915
1,230,603	Richmond	June 19, 1917
2,100,614	Schenk	Nov. 30, 1937
2,114,590	Colt	Apr. 19, 1938
2,504,313	Fearon et al.	Apr. 18, 1950