Dec. 11, 1956 A. H. PILLING 2,773,294

CLAMPS FOR CONCRETE FORM TIE RODS

Filed Dec. 6, 1954

Fig. 1.

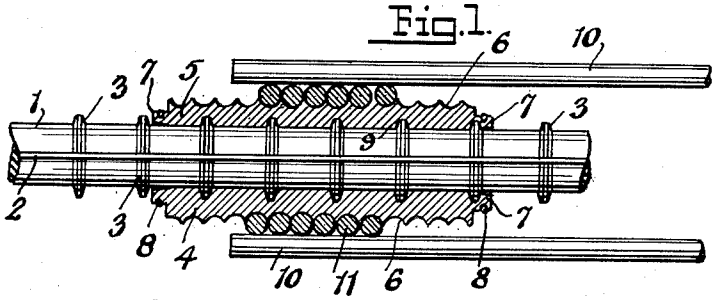


Fig. 2.

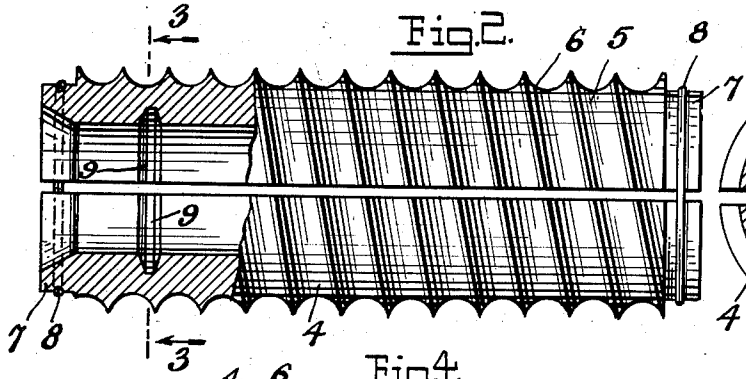


Fig. 3.

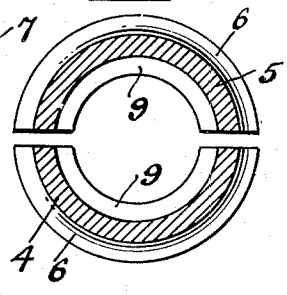


Fig. 4.

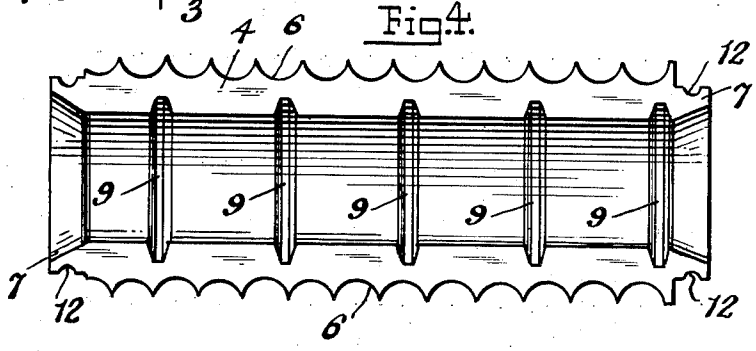
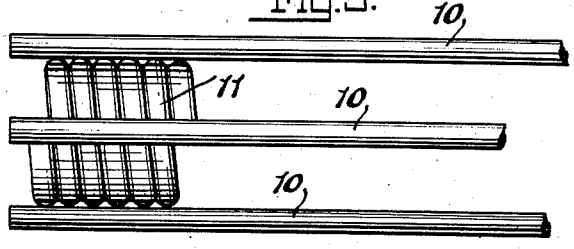


Fig. 5.



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CLAMPS FOR CONCRETE FORM TIE RODS

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7 Claims. (Cl. 25—131)

This invention relates to concrete form tie construction and has particular reference to a clamp by means of which a section or length of concrete reinforcing-bar may be utilized as a tie rod or for other purposes in form tie construction.

In the construction of concrete form ties, the contractor or builder is often required to improvise various arrangements of these rods to suit different building requirements or emergencies, and on many occasions finds tie rods of the required length not available. While tie rods of adjustable character are marketed, these are often not available nor at hand when required. Hence it is desirable that the contractor or builder shall be provided with means by which some readily-available rod or bar can be used as a part of a tie rod assembly and by which tie rods or concrete anchorages of desired length can be quickly fabricated.

It is therefore one of the objects of the present invention to provide means by which an ordinary concrete reinforcing bar can be utilized as a tie rod or concrete anchorage, this result being obtained by means of a novel clamping device which firmly grips the bar and provides a threaded anchorage for an adjusting device. It is another object of the invention to provide a clamp of this character which shall be of simple construction; one which will be easily fitted in position on the reinforcing bar and which will very securely grip the same while providing a threaded anchorage for an adjusting device.

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

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

Fig. 1 is a longitudinal sectional view through a clamp constructed in accordance with the invention;

Fig. 2 is an enlarged side elevational view, partly in section, of the clamp detached from the reinforcing bar;

Fig. 3 is a sectional view, taken substantially on the line 3—3 of Fig. 2, looking in the direction of the arrows;

Fig. 4 is a view of one of the segments of the clamp, looking at the concave side of the same; and

Fig. 5 is a side view of one of the ends of the adjusting member.

Referring to the drawing, 1 indicates a short length of concrete reinforcing bar, of the kind generally employed for the reinforcement of concrete structures, walls, and the like. The bar is generally cylindrical in shape, and usually has one or more longitudinal ribs such as indicated at 2, in the form shown, and being provided with a plurality of equally-spaced circumferential ribs 3. The clamp adapted to be grippingly applied to the rod, is composed of two metallic arcuate segments, each of which is semi-cylindrical and these segments constitute gripping jaws between which the rod 1 is firmly held. One of these segments is shown at 4 and the other is shown at 5. The same are substantially identical in construction.

On the outer surface of the clamp segments 4 and 5

are provided threads 6, which when the two jaws are in co-operative relationship, are adapted for threadable engagement with the convolutions of a spiral helix 11 welded or otherwise secured between a plurality of rods 10. One of these helices 11 is shown, but it will be understood that at the opposite end of the rods 11 another similar helix is provided, the latter usually threadably receiving a lag screw or other threaded element used in the adjustment of the form tie. The adjusting member shown in Fig. 5 is of known construction and is widely used in this art and therefore need not be described at length.

On the inner concave side of each of the segments or jaws 4 and 5 is provided a plurality of equally-spaced annular grooves 9, which conform in spacing and shape to the ribs 3 on the reinforcing bar 1. Hence it is apparent that when the two segments of the clamp are fitted on the bar 1 as shown in Fig. 1, the grooves 9 will fit over the ribs 3 and thus the clamp will be retained against longitudinal shifting movement along the length of the rod or bar 1.

At the opposite ends of the clamp segments or jaws 4 and 5 is provided a shoulder 7 which is grooved as indicated at 12 in Fig. 4, and when the two segments are placed in co-operating, bar-engaging relation, as shown in Fig. 1, split rings 8 are sprung into these grooves, the rings holding the clamp securely in place on the rod or bar 1. When the clamp is thus positioned on the rod or bar 1, the external screw threads 6 will then be in position to threadably receive the helix 11 which will be adjustable along the clamp to thereby regulate the resultant form tie as to its effective length.

From the foregoing, it will be apparent that by the use of a clamp constructed as described, a readily-available rod or reinforcing bar can be used as a tie rod since the clamp can be quickly fitted in position thereon; will retain its position on the bar securely, while permitting ready adjustment of the threaded adjusting member placed in engagement with its external threads. The contractor or builder can thus easily cut a length of reinforcing bar to the required length, apply the clamps adjacent to its opposite ends and quickly provide a form tie of a length to suit his needs.

While I have herein described the clamp as being especially adapted for application to a concrete reinforcing bar of a certain form, namely, one having a plurality of spaced circumferential ribs on it, it will be apparent that such a clamp might also be applied to reinforcing bars of other shapes, providing of course, that the inner surfaces of the clamp segments are shaped to conform to the outer surfaces of the bar to thereby grippingly and non-slidably engage the bar when the segments of the clamp are fitted in position thereon.

Having described a single 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 clamp of the character described comprising, a reinforcing bar having a plurality of spaced and separated ribs on its outer face, a clamp consisting of a pair of segments adapted to embrace the bar between them, the inner surfaces of the segments being provided with spaced-apart grooves corresponding in spacing to the ribs on the bar for fitment over the ribs on the bar and maintaining the bar against longitudinal movement in the clamp, and the exterior surface of the segments being threaded for the reception of the threads of an adjusting member.

2. A clamp of the character described comprising, a reinforcing bar having a plurality of spaced and independent circumferential ribs, a clamp composed of a pair of arcuate segments placed together to embrace the bar between them, the inner concave surfaces of the segments

having spaced annular grooves corresponding in spacing to the ribs on the bar and engaging the ribs on the bar and holding the segments against longitudinal shift relatively to the bar, means for holding the segments in clamping relation on the bar, the outer face of the segments being provided with threads, and an adjusting member consisting of spaced rods provided with a rigid helix between them, said helix threadably engaging the threads on the segments of the clamp.

3. A clamp of the character described comprising, a pair of arcuate segments adapted to embrace a ribbed reinforcing bar between them, the inner concave face of each of the segments having spaced and separated grooves to conform to the spaced ribs on the bar to hold the bar against longitudinal shift relatively to the segments, means embracing the segments and holding them in clamping position on the bar to thereby hold the bar against movement, the outer face of the segments being provided with threads.

4. A clamp of the character described comprising a pair of arcuate segments adapted to embrace a ribbed bar between them, the bar having spaced projections on its outer surface, the inner concave faces of the segments being formed with spaced-apart recesses to conform to the spaced projections on the outer face of the bar, the outer face of the segments being provided with threads.

5. A clamp of the character described comprising, a bar provided on its outer face with a plurality of equally-spaced separated circumferential ribs, a clamp consisting of a pair of arcuate segments constituting gripping jaws between which the bar is embraced, the inner concave surfaces of the segments being provided with a plurality of equally-spaced grooves conforming in spacing and shape to the ribs on the bar and adapted to fit over said ribs and hold the bar against longitudinal movement, means at the opposite ends of the segments for holding the segments in co-operating, parallel bar-embracing position, the outer surfaces of the segments being provided with screw threads.

6. A clamp for fitment on a ribbed concrete reinforcing bar comprising, a pair of similarly-shaped arcuate, semi-cylindrical segments co-operating to form a cylinder when placed together, a concrete reinforcing bar placed between the segments and grippingly engaged thereby and held against longitudinal movement through the cylinder formed by the segments, the bar being provided with a plurality of separate, spaced-apart annular ribs, the interior surface of each segment having separate, spaced-apart grooves for closely fitting over the ribs and holding the bar against longitudinal movement, the arrangement of ribs and co-operating grooves being such as to prevent entry of the bar between the segments or its removal from between the segments except when the segments are in separated relationship, the outer surfaces of the segments being provided with screw threads, and an adjusting member in the form of spaced rods provided with a rigid helix secured between them and having said rigid helix disposed in threadable engagement with said threads.

7. A clamp consisting of a plurality of segments adapted to embrace a concrete reinforcing bar between them, the segments being internally provided with spaced-apart recesses for engagement with the conventional irregularities on the surface of the bar to thereby prevent longitudinal shifting movement of the clamp in relation to the bar, the exterior surface of the segments being provided with threads.

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