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1,688,957

D. H. BITNEY

STRUCTURAL REENFORCE ELEMENT

Filed Oct. 22, 1926

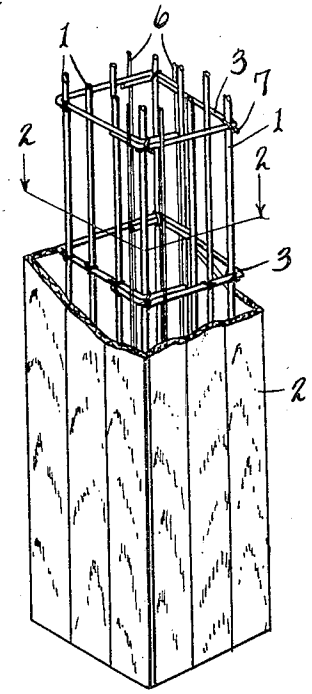


Fig. 1

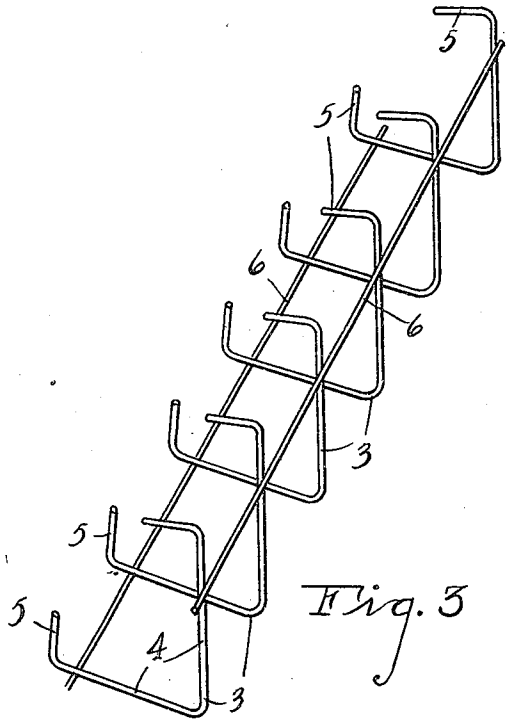


Fig. 3

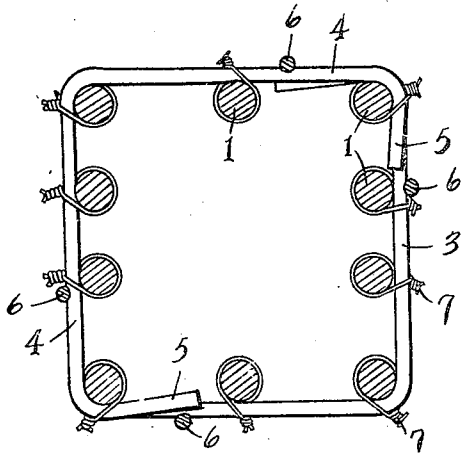


Fig. 2

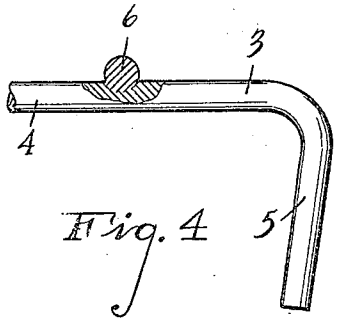


Fig. 4

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UNITED STATES PATENT OFFICE.

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STRUCTURAL REENFORCE ELEMENT.

Application filed October 22, 1926. Serial No. 143,479.

The main objects of this invention are:

First, to provide an improved reenforcing element for concrete structures comprising a plurality of longitudinal reenforcing bars supported in spaced relation and which may be quickly assembled at the place of use.

Second, to provide an improved reenforce bar spacer unit which is well adapted for use in spacing and supporting a plurality of reenforce bars for use in columns and the like.

Objects pertaining to details and economies of my invention will definitely appear from the detailed description to follow. The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this application, in which:

Fig. 1 is a fragmentary perspective view of my improved reenforcing element, a section of form being shown in operative relation thereto.

Fig. 2 is a horizontal section through the complete reenforcing element on a line corresponding to line 2—2 of Fig. 1.

Fig. 3 is a perspective view of one of my improved reenforce bar spacer units or tie units.

Fig. 4 is a fragmentary section showing the manner of connecting the longitudinal rods to the cross members.

Referring to the drawing, 1 represents the reenforcing bar and 2 a form for a column or the like. Each structural element comprises a plurality of the reenforce bars 1, which are spaced and tied together by my improved reenforce bar spacer or tie units, each consisting of a plurality of cross members 3 formed of light rod or heavy wire of suitable gage. These, when the column is to be of rectangular cross section, are bent to an angular form, the arms 4 of the cross members terminating in inwardly turned ends or lugs 5, thus providing a cross member with an open side and three inwardly facing angles.

These cross members are secured together in spaced parallel relation by means of the longitudinal rods 6 which are welded to the arms of the cross members as shown in Fig. 4, thereby supporting the cross members in a fixed spaced relation. The spacer units are employed in coacting pairs with their ends overlapping as shown in Fig. 2, the ends engaging corresponding diagonally opposite so that the longitudinal bars themselves constitute locking members.

In the embodiment illustrated there are ten reenforcing bars, four disposed in the angles of the spacer units and the others distributed in intermediate positions.

The bars are secured to the spacer members by means of the ties 7, wire ties being found very satisfactory for this purpose.

By thus forming the parts the structural elements can be rapidly assembled on the job, the bars being laid into one of the spacer units of a coacting pair through the open sides thereof, the other spacer unit positioned and the bars tied in place, this forming a complete or unitary structural element which may be handled as such. Or, if desired, the reenforce bars may be stood upright and the spacer units slipped about the same.

When assembled the parts are very effectively held in position. The spacers are economical to produce and very convenient to use.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A reenforce bar spacer unit consisting of a plurality of spaced angular cross members, the arms of which are disposed substantially at right angles to each other and terminate in inwardly turned ends to provide three inwardly facing angles in which reenforce bars may be disposed, and longitudinal rods fixedly secured to the arms of said cross members whereby they are supported in a fixed spaced non-collapsible relation.

2. A reenforce bar spacer unit consisting of a plurality of cross members open at one side and conformed to provide three inwardly facing angles, and longitudinal rods to which said cross members are connected in spaced non-collapsible relation.

3. A reenforce bar spacer unit comprising a plurality of spaced cross members open at one side, the ends of which terminate in inwardly turned lugs, and longitudinal rods fixedly secured to said cross members whereby they are supported in a fixed spaced non-collapsible relation.

4. A structural element comprising a plurality of reenforce bars, spacer units disposed in opposed coacting pairs, each comprising a plurality of spaced angular cross members the arms of which are disposed substantial-

ly at right angles and terminate in inwardly turned ends providing three inwardly facing angles in which reenforce bars are disposed, the ends of the arms of said cross members being disposed about diagonally opposite bars and in overlapping relation, longitudinal rods fixedly secured to the arms of said cross members whereby they are supported in fixed spaced relation.

5. A structural element comprising a plurality of reenforcing bars and spacer units disposed in coacting pairs, each comprising a plurality of spaced cross members open at one side, the ends of which terminate in inwardly turned reenforce bar engaging lugs, longitudinal rods to which said cross members are connected in spaced relation, the spacer units being disposed in opposed relation with their inwardly turned lugs engaging corresponding reenforcing bars, and ties securing said reenforce bars to certain of said cross members.

6. A structural element comprising a plurality of reenforcing bars and spacer units disposed in coacting pairs, each comprising a plurality of spaced cross members open at one side, the ends of which terminate in inwardly turned reenforce bar engaging lugs, longitudinal rods to which said cross members are connected in spaced relation, the spacer units being disposed in opposed relation with their inwardly turned lugs engaging corresponding reenforcing bars.

7. A structural element comprising a plurality of reenforce bars, and coacting pairs of angular cross members disposed in opposed facing relation, the arms of said cross members being disposed substantially at right angles to each other and terminating in inwardly turned ends providing each cross member with three inwardly facing angles, the ends of the arms of the coacting pair of cross members being disposed about diagonally opposite reenforce bars in overlapping relation, and ties securing the said reenforce bars to said cross members.

8. A structural element comprising a plurality of reenforce bars, and coacting pairs of angular cross members disposed in opposed facing relation, the arms of said cross members being disposed substantially at right angles to each other and terminating in inwardly turned ends providing each cross member with three inwardly facing angles, the ends of the arms of the coacting pair of cross members being disposed about diagonally opposite reenforce bars in overlapping relation.

9. A structural element comprising a plurality of reenforce bars, cross members disposed in coacting pairs to embrace said reenforce bars, said cross members being open at one side and terminating in inwardly projecting lugs disposed in engagement with a pair of longitudinal bars constituting tie members connecting the pair of cross members.

In witness whereof I have hereunto set my hand.

DEWEY H. BITNEY.