Sept. 30, 1947. D. H. BITNEY 2,428,137

REINFORCE SUPPORTING STRUCTURAL UNIT

Filed April 2, 1946

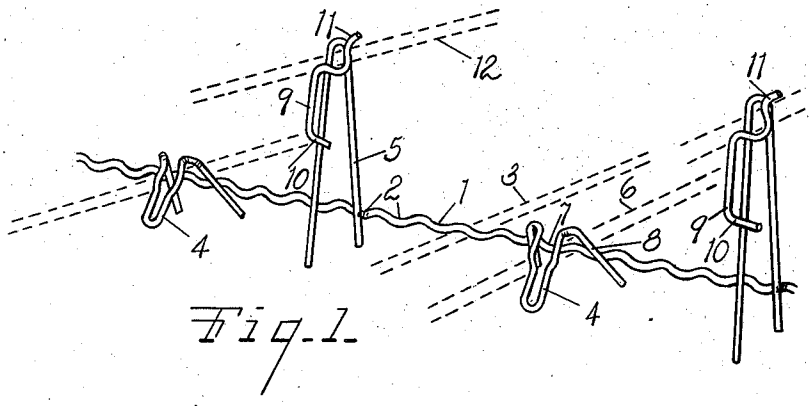


Fig. 1.

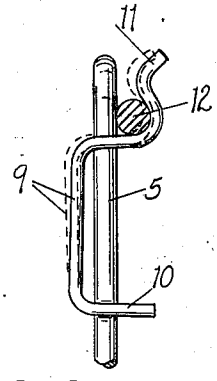


Fig. 3.

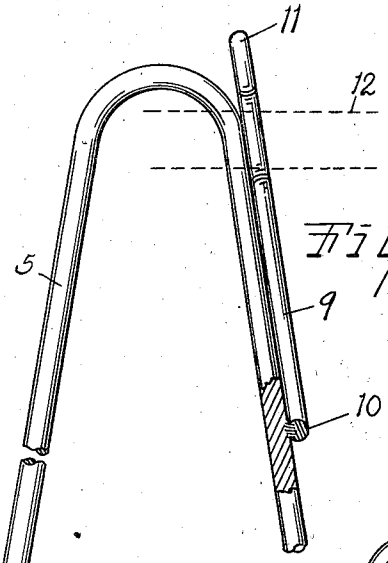


Fig. 2.

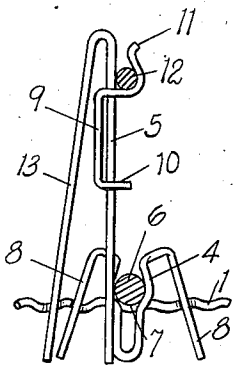


Fig. 4.

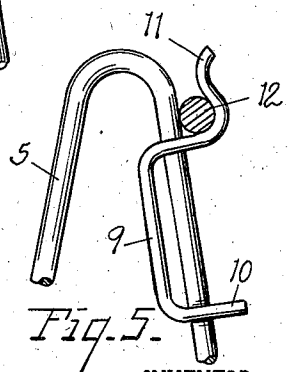


Fig. 5.

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REINFORCE SUPPORTING STRUCTURAL UNIT

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9 Claims. (Cl. 72—122)

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This invention relates to improvements in reinforce supporting structural units.

The main objects of this invention are:

First, to provide a structural unit for the supporting of reinforce bars or like elements which is capable of a wide adaptation in use, supporting reinforce elements in selected relationship.

Second, to provide a structural unit adapted for association with other similar units and reinforce bars to support the same in proper relationship without likelihood of their being distorted or displaced prior to or during the pouring of the concrete.

Third, to provide a structure having these and other advantages which may be very economically produced.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

Preferred embodiments of the invention are illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary perspective view of a structural unit embodying the features of the invention, reinforce bars or elements being shown by dotted lines associated therewith.

Fig. 2 is an enlarged fragmentary view partially broken away and in transverse section.

Fig. 3 is a fragmentary view in front elevation illustrating details of one of the chairs of the unit and the reinforce bar supporting and retaining clips, the springing action of the clip in engagement of the bar therewith being indicated by dotted lines.

Fig. 4 is a fragmentary view in front elevation of an alternative structure in which the chair elements are differently positioned relative to the snap-in clip members on the longitudinal rod.

Fig. 5 is a fragmentary view similar to Fig. 3 with the clip in position to support an upper rod in parallel relation to the longitudinal rod.

In the accompany drawing, I have illustrated only a fragment of one of the units. It will be understood that in practice these units are of considerable length and that a plurality of the units are employed, the units being disposed in substantially parallel relation. It is unnecessary to show a complete assembly of the units with the reinforcing bars.

The embodiment of my invention shown in the accompanying drawing comprises a corrugated longitudinal rod 1 disposed with its corrugations in a vertical plane, the corrugations being uniformly spaced and providing a plurality of upwardly facing seats 2 adapted to receive reinforcing bars or elements 3. The bars may be selectively disposed in these seats 2, the corrugations being uniformly spaced so that the bars 3 may be located in spaced relation by the workmen without the necessity of measuring in the placement of these bars.

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The rod is supported in somewhat elevated position by the U-shaped snap-in bar supports 4 and the inverted U-shaped chairs 5. These snap-in bar supports 4 are disposed in longitudinally spaced relation on the rod 1 and fixedly secured thereto, the supports 4 being springable to provide clips for the reinforcing bars 6 arranged in seats 7 in the longitudinal bar, the clips 4 being aligned with these seats. The arms 8 of the snap-in clips or supports 4 are welded to the longitudinal rod.

In the embodiment shown in Fig. 1, the chairs 5 are arranged in transverse relation to the longitudinal rod and one leg thereof is welded to the longitudinal rod as indicated conventionally in the drawing. When arranged transversely, the chairs provide effective legs and bracing members for maintaining the unit in upright position. The chairs are provided with U-shaped clips 9, the lower arms 10 of which are welded to the outer arm of the chair—that is, the arm that is not attached to the longitudinal rod.

The arms of the clip are disposed transversely of the chair, the upper arm terminating in an upturned inwardly offset or inwardly bent finger 11 spaced from the chair so that a reinforcing bar 12 may be snapped into or sprung into the clip, as shown in Fig. 3. Both the snap-in supports 4 and the chairs 5 constitute legs for the longitudinal bar and when the reinforce bars 6 and 12 are engaged with the unit and with a corresponding unit or units laterally spaced therefrom, a very secure support is provided for the reinforcing elements, and the reinforcing elements are not likely to be disturbed or displaced by the workmen walking thereon or the material dropped thereon or drawn thereover and the reinforcing bars are effectively supported for the pouring or placement of the concrete. The bars 3 may be wired in the seats if further anchoring is required although that is ordinarily unnecessary.

In the modification shown in Fig. 4, the chair 13 is positioned close to the support 4 so that the bar 12 is substantially in the plane of the bar 6.

In the embodiment shown in Fig. 5, the clip 9 is mounted on the side of the chair, that is,

it is turned one quarter angularly relative to the position shown in Figs. 1 and 2, so that the bar 12 would be positioned in parallel relation to the longitudinal rod 1.

If desired, the chairs may be provided on one leg thereof with the clips arranged as shown at 9 in Fig. 1 and on the other leg with clips arranged as shown in Fig. 5. When that is done, the two clips should be disposed of at different elevations. In such an arrangement the rods 12 are not only suitably supported as reinforce bars but they constitute effective brace members for the chairs.

My improved structural units are capable of a wide adaptation in use and are highly effective in supporting the reinforce bars or elements and at the same time they may be made of quite light stock.

I have not attempted to illustrate or describe various modifications or adptations of my invention as it is believed that this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

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

1. A structural unit comprising a corrugated longitudinal rod disposed with its corrugations in a vertical plane, the corrugations being uniformly spaced and of uniform depth and comparatively shallow relative to the length of the rod and constituting seats with which reinforce bars may be selectively engaged, a plurality of upwardly facing U-shaped snap-in bar supports secured to said rod in longitudinally spaced relation and in aligned relation with certain of the seats of said rod to springably engage reinforcing bars arranged in such seats and disposed transversely said longitudinal rod, said snap-in bar supports constituting leg members for said rod, inverted U-shaped chair members disposed in alternating relation to said snap-in supports and secured to the rod, said chair members constituting legs for said rod and projecting substantially above said snap-in supports, and U-shaped spring clips disposed with their arms transversely of said chair members and having their lower arms fixedly secured to the chair members, their upper arms terminating in upturned fingers cooperating with the arms of said chair member on which the clip is secured to springably receive a reinforcing bar and support the same in elevated relation relative to the reinforcing bars arranged on said longitudinal rod or engaged in said snap-in bar supports.

2. A structural unit comprising a longitudinal rod, a plurality of upwardly facing U-shaped snap-in bar supports secured to said rod in longitudinally spaced relation and constituting leg members for said rod, said snap-in supports for springably engaging reinforcing bars disposed transversely of said longitudinal bar, inverted U-shaped chair members disposed in alternating relation to said snap-in supports and secured to the rod, said chair members constituting legs for said rod and projecting substantially above said snap-in supports, and U-shaped spring clips disposed with their arms transversely of said chair members and having their lower arms fixedly secured to the chair members, their upper arms terminating in upturned fingers cooperating with the arms of said chair member on which the clip is secured to springably receive a reinforcing bar and support the same in elevated relation relative to the reinforcing bars arranged on said longitudinal rod or engaged in said snap-in bar supports.

3. A structural unit comprising a longitudinal rod, a plurality of upwardly facing snap-in bar supports secured to said rod in longitudinally spaced relation and constituting leg members for said rod, said snap-in supports for springably engaging reinforcing bars disposed transversely of said longitudinal bar, chair members disposed in alternating relation to said snap-in supports and fixedly secured to said rod to constitute legs therefor, the chair members projecting substantially above said snap-in supports, and springable reinforce bar clips mounted on said chair members to springably receive a reinforcing bar and support the same in elevated relation relative to the reinforcing bars arranged on said longitudinal rod or engaged in said snap-in supports.

4. A structural unit comprising a longitudinal rod, a plurality of upwardly facing snap-in bar supports secured to said rod in longitudinally spaced relation, said snap-in supports for springably engaging reinforcing bars disposed transversely of the longitudinal bar, chair members fixedly secured to said rod, the chair members projecting substantially above said snap-in supports, and springable reinforce bar clips mounted on said chair members to springably receive a reinforcing bar and support the same in elevated relation relative to the reinforcing bars arranged on said longitudinal rod or engaged in said snap-in supports.

5. A structural unit comprising a longitudinal rod vertically corrugated at predetermined intervals, a plurality of snap-in bar supports secured to said rod in longitudinally spaced relation and in relation to the corrugations therein to springably receive and retain reinforce bars resting in corrugations in the latter, and disposed transversely said longitudinal rod, said longitudinal rod having a plurality of corrugations between said support members, and a plurality of chair members secured to said rod and having spring clips thereon disposed above said snap-in supports and adapted to springably receive reinforce members for supporting the same in elevated relation relative to said longitudinal rod and the reinforce elements arranged thereon, the reinforce bars engaged in said clips constituting means for holding the unit in upright position when associated with other similar units.

6. A structural unit comprising a longitudinal rod, a plurality of bar clips secured to said rod in longitudinally spaced relation to springably receive and retain reinforce bars disposed transversely of said longitudinal rod, and a plurality of chair members secured to said rod and having spring clips thereon disposed above said bar clips and adapted to springably receive reinforce members for supporting the same in elevated relation relative to said longitudinal rod and the reinforce elements engaged in said clips thereon, the reinforce bars engaged in said clips constituting means for holding the unit in upright position when associated with other similar units.

7. A structural unit comprising a corrugated longitudinal rod disposed with its corrugations in a vertical plane, the corrugations being uniformly spaced and of uniform depth and comparatively shallow relative to the length of the rod and constituting seats with which reinforce bars may be selectively engaged, a plurality of pairs of legs fixedly secured to said rod to project above the rod, the upper ends of the legs being connected

by an integral downturned loop constituting a strut, the arms of the loop being outwardly offset to receive a reinforce bar disposed on one of the seats and disposed transversely said longitudinal rod, and inverted U-shaped chairs, one leg of each of which is welded to said rod, said chairs constituting legs for said longitudinal rod and being alternatively arranged relative to said first-named legs, said chairs having U-shaped reinforce bar clips disposed with their arms transversely of the arms of the upright, the lower arms being welded to the arms of the upright, the upper arms terminating in upturned fingers cooperating with the upright arms to support a reinforce bar.

8. A structural unit comprising a rod provided with a series of vertically disposed corrugations to provide seats for receiving and supporting reinforcing bars transversely of said rod, a plurality of chair members spaced along the length of said rod, the chair members being of inverted U-shape to provide a pair of supporting legs and a connecting loop-like portion integrally connected to said legs, the legs of a pair and said connecting loop-like portion being disposed in a plane transversely of said rod, said rod being secured to and supported by one of the legs of each pair, a spring clip disposed above said rod and secured to the other leg below said connecting loop-like portion of said pair to springably receive and support a reinforcing bar in an elevated position relative to the reinforcing bars supported by and disposed transversely of said rod, the spring clip supporting leg being free of said rod supported by the other leg to permit movement

of the spring clip supporting leg independently of said rod.

9. A structural unit comprising a rod having means spaced along the length thereof for seating reinforcing bars transversely of said rod, a plurality of chair members spaced along the length of said rod, the chair members being of inverted U-shape to provide a pair of supporting legs and a connecting loop-like portion integrally connected to said legs, said rod being secured to and supported by one of the legs of a pair, said chair members extending above said rod and provided with spring clips secured to the other leg below the connecting loop-like portion thereof to springably engage and support a reinforcing bar in an elevated position relative to the reinforcing bars supported by and disposed transversely of said rod, the spring clip supporting leg being free of said rod supported by the other leg to permit movement of the spring clip supporting leg independently of said rod.

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