

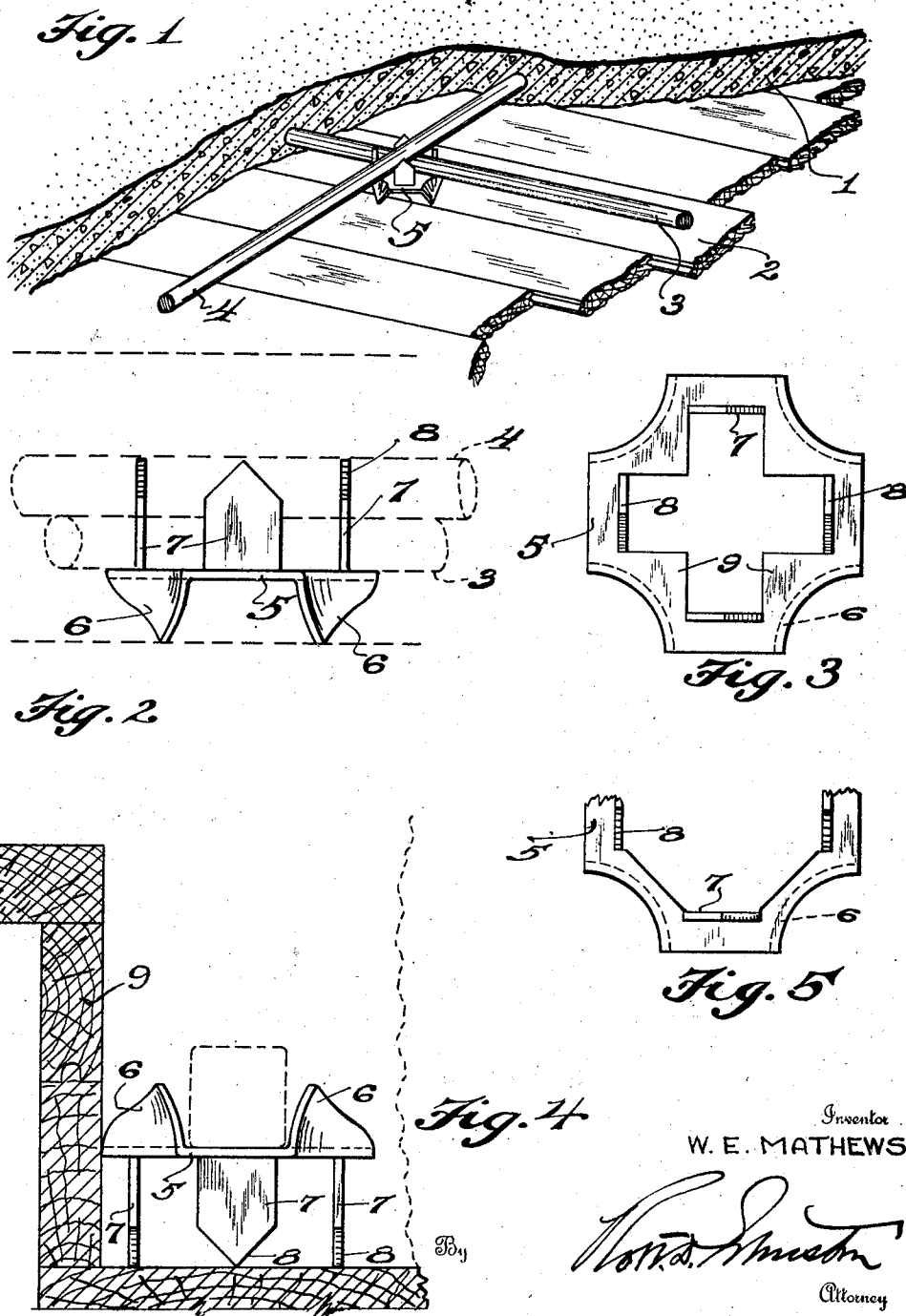
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CHAIR FOR SUPPORTING AND SPACING CONCRETE BEAM AND SLAB REINFORCING STEEL

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CHAIR FOR SUPPORTING AND SPACING CONCRETE BEAM AND SLAB REENFORCING STEEL.

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My invention relates to a chair for supporting and spacing the reinforcing steel in concrete beams and slabs.

The object of my invention is to design a chair for supporting and spacing concrete reinforcement that can be inexpensively manufactured, preferably as a light but very strong sheet metal stamping, and which will have the following distinctive advantages, namely:

The chair will be constructed so skeleton-like in its framework that it will cause a minimum of hindrance to the flowing of the concrete around it;

It will support the reinforcing steel on a plurality of pointed lugs, thus reducing to a minimum the amount of itself showing through the bottom surface of the concrete when the forms are removed;

It will act as a spacer as well as a chair, in that the points of the supporting lugs will bite into the forms, thus setting up very great resistance to lateral displacement of the chair when once in place, and, since the steel is confined to the chair by the upstanding lugs, it will also remain where the steel man places it;

It will be of ample ruggedness, unique in design and being made of comparatively heavy gauge steel, it is abundantly safe against collapse under average working conditions, which are often very severe. During the pouring of the concrete slab workmen are walking over the steel while it rests on these chairs, sometimes even carrying heavy loads. This chair is designed to successfully withstand this punishment;

The chair is duplex in that while resting on one set of lugs it is a chair for beam steel, and while resting on the other set of lugs it is a chair for supporting and spacing slab steel. In either position the upstanding lugs serve to confine the steel and insure against its dislodgment from the chair. The lengths of the two sets of lugs are in conformity with this duplex feature, the chair resting on its longer lugs when supporting beam steel and on its shorter lugs when supporting slab steel;

When used to support beam steel, this chair will automatically prevent the bars from coming too close to the side forms, and will also automatically compel a proper interval of space between any two adjacent bars in the same beam, thus insuring the

proper imbedding of each bar in the concrete. These are important features.

Whether used as a chair for beam steel or as a chair for slab steel, the bar supported will rest directly over points of support, thus preventing settling of the bars due to the sagging of the chair between its points of rest. The chair is given this feature by staggering the two sets of lugs with reference to each other;

Both sets of lugs are substantially at right angles to the plane of the floor on which the chair is placed, thus effectually eliminating all likelihood of "honeycomb", or poorly filled aggregate, about the point of rest of the chair.

My invention also contemplates broadly the stamping up from a metal plate of upturned and downturned lugs, each set of lugs being adapted to form both guides and supports for the reinforcing bars and the lugs of one set being preferably longer than those of the other set to adapt the chair for use with various kinds of reinforcements.

My invention also comprises the novel details of construction and arrangements of parts, which in their preferred embodiments only are illustrated in the accompanying drawings which form a part of this specification, and in which:—

Fig. 1 is a perspective view showing my improved chair in operating position supporting the reinforcing bars of a slab.

Fig. 2 is a side elevation of the chair with the bars shown in dotted lines.

Fig. 3 is a plan view of the chair as shown in Fig. 2; and

Fig. 4 is a view corresponding to Fig. 2 showing the chair inverted and supporting a reinforcing bar in a beam form.

Fig. 5 is a fragmental view showing a modified form of the chair shown in plan in Fig. 3.

Similar reference numerals refer to similar parts throughout the drawings.

In the embodiment of my invention illustrated, I show a concrete slab 1 being poured over the boards 2 of its form and having imbedded in the slab the crossed reinforcing bars 3 and 4 which at their intersections are supported by my improved type of chair, generally indicated by the numeral 5. This chair in the preferred embodiment shown is formed from a stamping of sheet metal of the requisite gauge, according to the duty

contemplated for the chair. It is provided with downturned pointed lugs 6 which are provided by deforming and bending down the corners of the square blank from which the chair is stamped. These corners are bent down so as to have, in horizontal cross section, a concavo-convex shape which materially increases their load supporting strength and resistance to lateral thrust. These lugs 6 have bottom points which engage the form boards 2 and serve to hold the reinforcement in position thereon against slippage with the requisite space left under the bars to permit the concrete to flow around and envelop them to the extent required by standard practice. From the center of the blank I strike up four lugs 7 having pointed symmetrical tips 8, these being set 90° apart and in staggered relation to the downturned lugs 6. The center of the blank after the striking up of the lugs 7 may be left with the pointed projections in the center, as shown in Fig. 3, or if it is desired to produce a lighter and more skeleton like form of chair, the apices of the triangular shaped projections 9 left in the blank between the lugs 7 may be cut away to leave an octagonal space as shown in Fig. 5.

It will be noted that the lugs 7 are substantially longer and more closely spaced than the lugs 6. This arrangement is of advantage in that it enables the reinforcing bars for beams and slabs to be supported at different distances from the bottom of the form, with the shorter lugs 6 serving to support the bars for the relatively shallow slabs while the longer lugs 7 serve to support the bars for the deeper beams. Because the lugs 6 and 7 are relatively staggered the supported bar in each case will lie between the upturned lugs and with its axis above two of the downturned supporting lugs. This places the load in the correct position on the supporting lugs. Also since in the slabs the chair is called upon to support intersecting bars there is advantage in having the longer lugs 7 upturned, as they will serve to position the superimposed bars, as will be more clearly seen in Fig. 2.

Generally, in beams the chair is not called upon to support intersecting bars and thus the shorter lugs are ample for the purpose, and, due to the arrangement of the lugs, spaces for larger bars are provided between the lugs 6 than between the lugs 7, which is proper because the reinforcement is generally heavier for the beams than for the slabs. The engagement of the sides of the chairs with adjacent chairs or bars or sides of beam the form 9 will serve to prevent the reen-

forcing bars getting too close to the form sides or to each other and thus will properly space them at all times and insure their becoming properly imbedded in the concrete.

While I have referred to my invention as a stamping it is obvious that it can be produced of any desired metal and in any desired way.

Though I have described with great particularity the details of the embodiment of the invention herein shown, it is not to be construed that I am limited thereto, as changes in arrangement and substitution of equivalents may be made by those skilled in the art without departing from the invention as defined in the appended claims.

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

1. An invertible chair for concrete reinforcing steel, comprising a body portion having opposed sets of out-turned lugs relatively staggered and spaced and each set adapted when downturned to support and when upturned to confine the reinforcing steel.

2. A chair for concrete reinforcing steel, comprising a skeleton body portion having upturned lugs struck up from its center and having relatively shorter marginal lugs downstruck from its corners.

3. A chair for concrete reinforcing steel, formed of a sheet metal stamping having marginal downturned lugs and having the major portion of its center struck up to form upturned lugs, the lugs on one side being more widely spaced about the margin of the chair than the lugs on the other side.

4. A chair for concrete reinforcing steel, formed of a sheet metal stamping having marginal downturned lugs and having the major portion of its center struck up to form supported lugs when inverted, the lugs on one side being longer than those on the other side and the lugs on one side being more widely spaced than those on the other side.

5. A chair for concrete reinforcing steel comprising a skeleton body portion having two oppositely extending sets of spaced lugs, the lugs of each set being turned at substantially right angles to the plane of the body portion, either set of lugs being adapted for supporting the chair or for receiving and confining the reinforcing steel, and the lugs of one set being longer than the lugs of the other set.

In testimony whereof I affix my signature.

WILLIAM E. MATHEWS.