

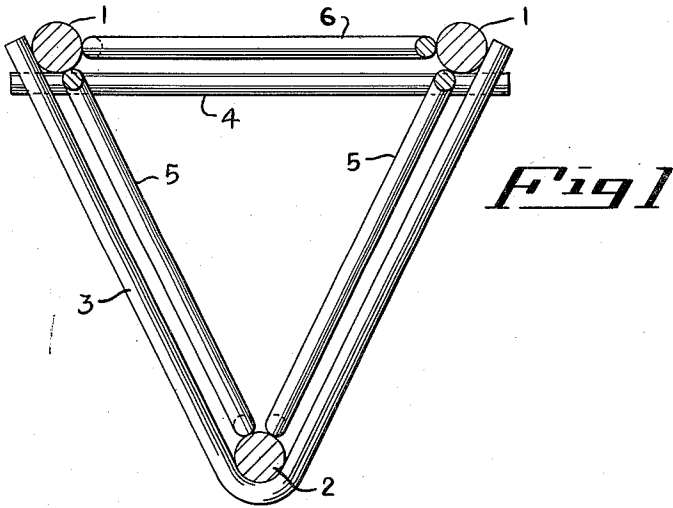
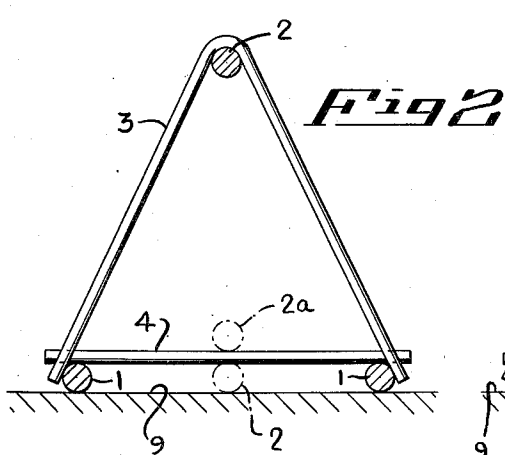
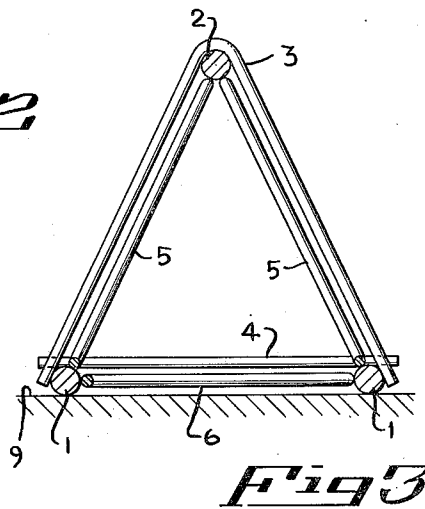
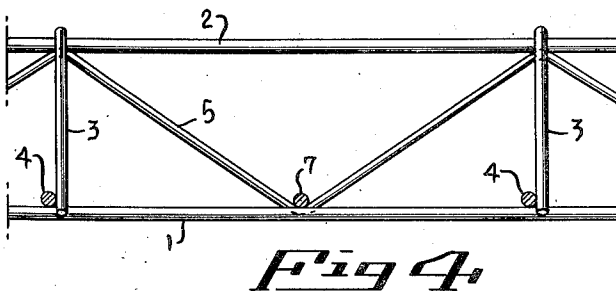
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METHOD OF MANUFACTURING WELDED TRIANGULAR LATTICE GIRDER

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METHOD OF MANUFACTURING WELDED TRIANGULAR LATTICE GIRDER

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1 Claim. (Cl. 29—155)

The invention refers to a welded lattice girder of triangular cross-section, for which hot rolled round steel bars are particularly suitable as construction members, and which is prominently intended for roof and ceiling structures as well as for other structural members. The aim of the invention is to design a lattice girder in such a way, that it has on account of its preferential uses a particularly favorable, smooth carrying surface free from protruding part in the plane of its upper chord; moreover the girder in its entirety (totality) shall be so designed, that it may be manufactured in mass production with simple means and the least requirements of time and labor. The means serving this purpose in the manufacture of the girder form a further object of the invention.

The essential inventory mark of the welded triangular lattice girder is, that the members of the upper and lower chord are surrounded at specific intervals of the girder length by V-shaped buckles welded to the chord members and that the two welding points of the buckle with the members of the upper chord are braced with a crossbrace. In this arrangement the buckles and cross-braces not only act as carrying and stiffening elements of the girder, but also serve at the same time for the exact constructive fixation of the singular parts of the girder, which has an important bearing on the assembly during its construction. Furthermore the V-shape of the buckle and the invented arrangement of the cross braces at the lower edge of the members of the upper chord result in obtaining a perfectly even carrying surface of the girder in the plane of the upper chord. In order to cut down the collapsing length of the upper chord against laterally acting forces, the members of the upper chord may be within the framework of the invention connected by additional crossbraces inbetween the V-shape buckles, which will be placed best at the joints of the lattice and the upper chord members.

The triangular lattice girder forming the subject matter of the invention is by way of example illustrated in the attached drawing.

In this drawing,

FIG. 1 is a vertical sectional view of a girder in accordance with the invention, showing the girder in upright V-shape position of use;

FIG. 2 is a sectional view, similar to FIG. 1, but on a smaller scale and showing the girder inverted in an upside down A-shape position illustrating a first step during the manufacture of the girder;

FIG. 3 is a sectional view similar to FIG. 2, again showing the girder in the inverted A position, though almost completely finished; and

FIG. 4 is a fragmentary elevational view, partly in section, again showing the girder in the inverted A position, but after it has been completely finished.

The triangular lattice girder illustrated in FIG. 1 has two round steel rods or profiles 1 forming the upper chord and a third round steel profile 2 forming the lower chord. At a predetermined distribution over the length of the girder V-shaped frames 3, open at the top, and also formed of round rod or profile bar are disposed, in the angles of which the lower chord member 2 is seated; the end of each leg of each frame 3 bears on an upper chord member 1 and does not protrude beyond the mem-

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ber 1. At their points of contact the members 1 and 2 are welded to the frames 3 as well as each to a cross stay 4, which engages the lower sides of the two upper chord members 1. At each of the three side surfaces of the girder there is arranged a zig-zag shaped latticing 5 or 6, which has parts extending diagonally from one chord member to another and consists of round steel bar or profile thinner than the cord members and at its points of bending is welded to the chord members, see also FIG. 4. FIG. 4, which shows the girder inverted with the upper chord members 1 at the bottom, shows that these members 1 are connected together, at points of connection with the latticing, by additional cross stays 7. As FIG. 1 shows, the triangular lattice girder according to the invention possesses a completely flat bearing surface.

The method for the production of the triangular lattice girder forming a further part of the invention is further explained below.

Referring to FIGS. 2, 3 and 4, the two lower chord members 1 are laid parallel to each other at the prescribed distance apart and in the middle between them the lower chord member 2 is laid on a horizontal, flat working surface 9. Then the V-shaped frames 3, with the opening at the bottom, are set up at predetermined distances apart vertically over the members 1 and welded to the latter. Now the cross stays 4 are placed on the two upper chord members 1, they being, however, passed through below the lower cord member 2, so that the latter is supported on them in the raised position marked 2a (FIG. 2). After the welding of the cross stays 4 to the upper chord members 1 and the frames 3, the position of the triangular system of the cross-section of the girder is fixed. Hereupon the lower chord member 2 is further raised until it bears in the angles of the frames 3, and there it is welded in place. In the next operation the latticings 5 and 6 are fitted to the sides of the triangular girder and welded to the members 1 and 2 respectively at the contacting points. The last finishing steps are the fitting and welding of the intermediate cross stays 7 (FIG. 4).

From the above mentioned procedures it will be noticed, that the invented method will also allow the mass production of the girders at a high rate of efficiency within a brief time with a few suitable manipulations, which allow on top of it an easy and unrestricted performance of the welding operations with economical workload as well as very simple gear.

For the construction of the invented girder not only hot rolled round steel but also other sections are perfectly suitable as for instance tube sections.

We claim:

A method of manufacturing a lattice girder, comprising the steps of laying a plurality of chord members parallel to each other on a working surface, welding the upper chord members to V-shaped frames, laying a plurality of cross stays over the upper chord members and under the lower chord member, welding said cross stays to said upper chord members and to the frames, raising the lower chord member into the apices of said frames, and finally fitting latticings and welding the same to said chord members.

References Cited in the file of this patent

UNITED STATES PATENTS

2,042,779	Frease	June 2, 1936
2,241,617	Rubin	May 13, 1941
2,465,074	Edge	Mar. 22, 1949
2,592,548	Edge et al.	Apr. 15, 1952

FOREIGN PATENTS

822,154	Germany	Nov. 22, 1951
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