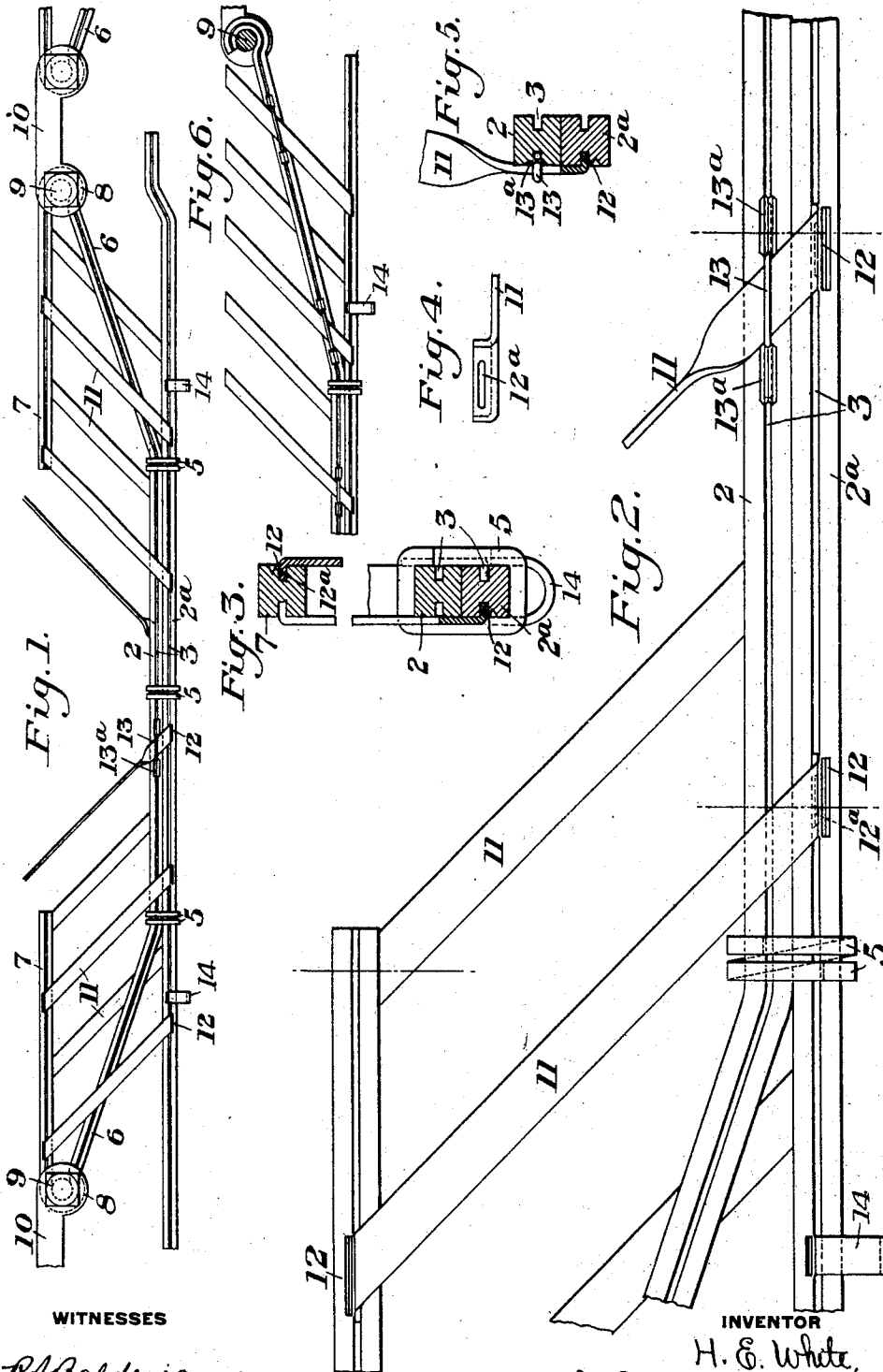


H. E. WHITE.
 REINFORCING TRUSS FOR CONCRETE STRUCTURES.
 APPLICATION FILED MAY 22, 1908.

919,273.

Patented Apr. 20, 1909.



WITNESSES

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UNITED STATES PATENT OFFICE.

HERBERT E. WHITE, OF YOUNGSTOWN, OHIO, ASSIGNOR TO THE GENERAL FIREPROOFING COMPANY, OF YOUNGSTOWN, OHIO, A CORPORATION OF OHIO.

REINFORCING-TRUSS FOR CONCRETE STRUCTURES.

No. 919,273.

Specification of Letters Patent.

Patented April 20, 1909.

Application filed May 22, 1908. Serial No. 434,236.

To all whom it may concern:

Be it known that I, HERBERT E. WHITE, of Youngstown, Mahoning county, Ohio, have invented a new and useful Reinforcing-Truss for Concrete Structures, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of one form of truss embodying my invention; Fig. 2 is a similar view of a portion of the same on a larger scale; and Figs. 3, 4 and 5 are detail views hereinafter referred to; and Fig. 6 is a side view showing a modification.

My invention has relation to reinforcing trusses for concrete structures, and is designed to provide a novel and efficient form of truss for this purpose.

The precise nature of my invention will be best understood by reference to the accompanying drawings, in which I have illustrated one form thereof, and which will now be described, it being premised, however, that various changes may be made in the details of construction and arrangement without departing from the spirit and scope of my invention as defined in the appended claims.

In accordance with my invention, the tension member of the truss is formed by two or more superimposed bars 2 and 2^a, which are provided each with longitudinal grooves 3 on their lateral surfaces, thus making the bar of I-beam section. The bars 2 and 2^a may be tied together in any suitable manner, as by the ties 5 wrapped around them, as shown, the end ties being closely adjacent to the points where the end portions of the bar 2^a are bent upwardly. The end portions of the upper bar 2 are bent obliquely upward as shown at 6, and, in the form shown in Fig. 1, their free ends are bent backwardly over and parallel with the tension member of the truss to form the compression members 7. That is to say, these members act mainly as compression members, but at the ends of the beam, they act as tension members to resist the tension due to the negative bending moments over the points of support. The bends which unite the portions 6 and 7 are shaped to form an eye or bearing 8 for a pin 9, which secures the links 10 which connect the truss with an adjacent truss as indicated in Fig. 1, but this may be omitted

where this connection is not necessary or desired.

11 designates the oblique bracing members of the truss, which are preferably formed of flat shapes or sections. The end portions of these bracing members are bent inwardly into engagement with the lateral grooves 3 in the tension members, and are secured therein by upsetting the metal of one or both walls of said grooves into locking engagement with the bent lips at the ends of the bracing members, as indicated at 12. To provide for this locking engagement, these bent end portions or lips are preferably provided with recesses or depressions 12^a, as best shown in Fig. 4, into which the upset portions 12 are forced by the upsetting operation. The bracing members are secured in this manner at their lower ends to the lower tension bar 2^a and some of them are preferably tied to the upper tension bar 2 by means of wires 13 which are looped thereover with their end portions secured in the grooves of said bar by upsetting the metal over them, as indicated at 13^a. The bracing members 11 are preferably so arranged that adjacent members will be alternately at opposite sides of the truss, that is to say, looking at Fig. 1, one of the bracing members is at the front side of the truss while the next bracing member is at the rear side.

14 designate chairs in the form of clips whose ends are secured in the grooves of the lower tension bar. These chairs are for the purpose of holding the frame away from the forms in building the reinforced structure, to permit the concrete to flow under the truss and thus form fire protection at the under side of the beam or girder.

In the form shown in Fig. 6, the compression members are omitted, and such of the bracing members as cross the oblique portions 6^a are tied thereto by ties 13^a which are similar to the ties 13 before described.

The advantages of my invention will be apparent to those skilled in the art, since it provides a reinforcing truss possessing great strength, and which can be readily built up. The manner of securing the bracing members to the tension and compression members of the truss avoids the use of separate fastenings, and provides for a simple and secure connection of these parts.

What I claim is:—

1. A reinforcing truss for concrete having

its tension member composed of separate superimposed bars of I-beam section and of different lengths, the upper and longer of said bars having its end portions extended obliquely upwardly and then bent backwardly over and parallel with the tension members to form compression members, and bracing members having their ends bent between the flanges of the I-beam sections and secured therein by upsetting of the metal of said flanges together with means for securing together the separate superimposed bars; substantially as described.

2. A reinforcing truss for concrete structures having a tension member composed of two superimposed bars of I-beam section, the upper of said bars having its end portions extended obliquely upward and thence bent back over and parallel with the main portion of the bar to form compression members, and bracing members having their upper ends secured between the flanges of the compression members and their lower ends secured between the flanges of the lower tension members and also secured to the upper tension member together with means for thus securing the bracing members to the upper tension member; substantially as described.

3. A reinforcing truss for concrete, having its tension member composed of two superimposed bars of I-beam section, and bracing members having their lower ends bent into engagement with and secured between the flanges of the lower tension bar, and tie members secured between the flanges of the upper tension bar and tying the braces thereto; substantially as described.

4. In a reinforcing truss for concrete, a tension member composed of two superimposed grooved bars, and bracing members having their lower ends secured in the grooves of the lower bar, and ties secured in the grooves of the upper bar and tying some of said members thereto; substantially as described.

5. In a reinforcing truss for concrete, a laterally grooved tension member, bracing members secured to said tension member, and tie clips extending over the bracing members and secured in grooves of the tension member, substantially as described.

In testimony whereof, I have hereunto set my hand.

HERBERT E. WHITE.

Witnesses:

H. R. GLENN,

G. D. MARGERUM.