July 10, 1928. 1,676,258

C. H. FORK

METHOD OF MAKING TRUSSED STRUCTURES

Filed Feb. 11, 1924

Fig. 1.

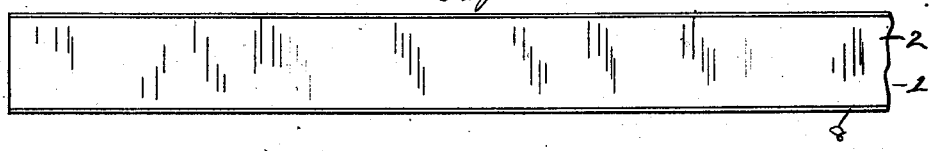


Fig. 2.

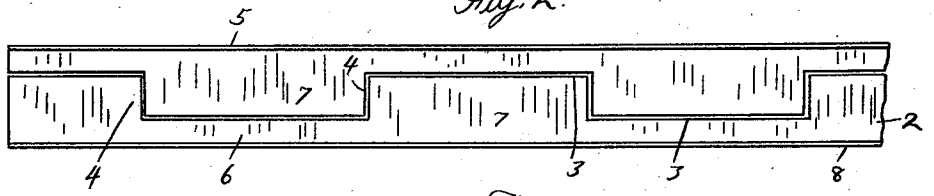


Fig. 3.

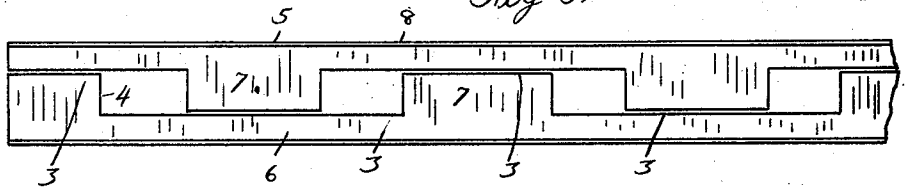
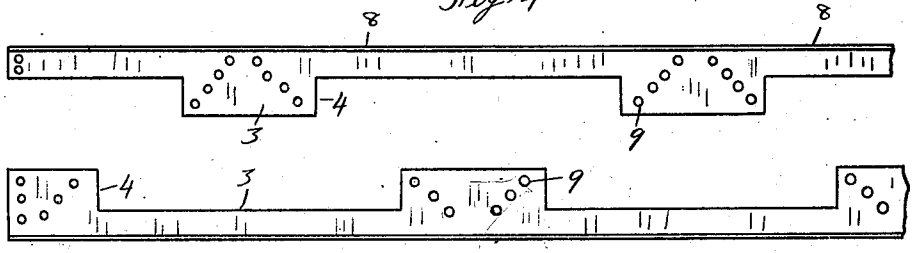


Fig. 4



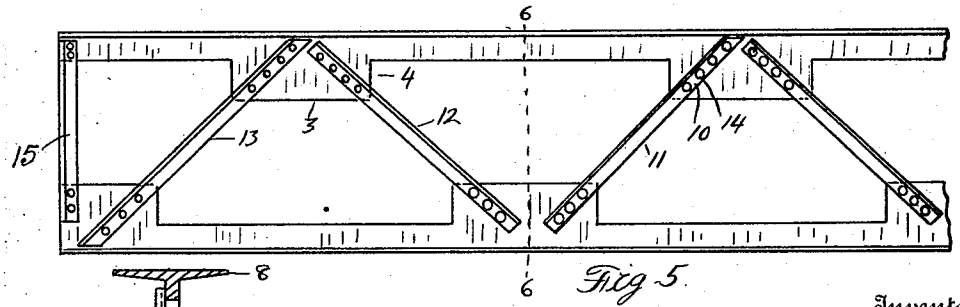


Fig. 5.

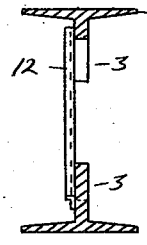


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES H. FORK, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO WILLIAM J. RUSH, OF DEARBORN, MICHIGAN.

METHOD OF MAKING TRUSSED STRUCTURES.

Original application filed July 3, 1922, Serial No. 572,694. Divided and this application filed February 11, 1924. Serial No. 692,108.

This invention relates generally to trussed structures and refers more particularly to the method of manufacturing such structures.

One of the essential objects of the invention is to provide a simple form of trussed structure that is capable of being used for various purposes such as in the metal construction of buildings, bridges and the like and as reinforcing members in concrete constructions.

Another object is to provide a metallic truss composed of relatively few parts which are so arranged that the stresses throughout the length of the truss are economically provided for.

Another object is to reduce the cost of manufacturing to a minimum as hereinafter set forth.

With the above and other objects in view the invention consists in certain novel features of construction as will be more fully described and particularly pointed out in the appended claims.

This application is a divisional of my copending application, Serial Number 572,694, filed July 3, 1922 for trussed structures and method for making the same.

In the accompanying drawing:

Figure 1 is an elevation of a blank which is employed in the construction of the truss;

Figure 2 is a similar view showing the blank after the slitting operation;

Figure 3 is a similar view showing the blank after the cutting operation;

Figure 4 is a similar view showing the chord member separated;

Figure 5 is an elevation of the finished structure;

Figure 6 is a sectional view taken on the line 6—6 of Figure 5.

In the construction of metallic trusses it is usual to form one or both chords of the same along a single straight line or along a broken line partially or entirely inclined downward toward one or both supports. These chords are usually composed of two angle members arranged back to back upon opposite sides of a plurality of gusset plates. Aligned holes are usually drilled or punched through the angle members and gusset plates to receive bolts, rivets or other securing elements. This form of construction necessitates the handling of a large number of parts and also involves considerable time to make the numerous holes to receive the securing elements. Moreover, it is apparent that inaccuracies are apt to arise in the attempt to drill or punch the large number of holes that are required to be spaced exactly the same distance apart in the chord members.

With the present invention, however, the gusset plates are formed integral with the chord members and the objectionable features just referred to are entirely overcome. In detail, the numeral 1 designates a blank which is employed in the construction of my truss. This blank may be made of any suitable material, and may be made in various different forms in cross-section, but is preferably a steel I-beam or channel.

In the process of construction, the web portion 2 of the blank is slit along a line having alternate portions 3 disposed upon opposite sides of its longitudinal axis and connecting portions 4 crossing said longitudinal axis, as shown in Figure 2, to provide separate chord members 5 and 6 respectively, having spaced integral gusset plates 7 of uniform widths and lengths. The gusset plates 7 extending from one chord member are offset with respect to the plates extending from the other chord member. While the outer edges of the gusset plates 7 are shown parallel to the flanges 8 of the blank, it is obvious that the web portion 2 of the blank may be slit in any desired manner to produce gusset plates of various shapes and designs according to the particular load for which the truss is designed. In this connection it will be apparent that in the general application of trusses the chord stresses are at a maximum in the panels at or near the center of the truss and consequently these panels may be made relatively large and the corresponding gussets relatively small, while the panels adjacent the supports may be made relatively small and their corresponding gusset plates relatively large. This construction is highly desirable and permissible due to the fact that the shearing stresses adjacent the supports are at a maximum and consequently a large gusset plate is needed while the shearing stresses at the center of the truss is almost negligible and accordingly a small gusset plate will suffice. Thus by splitting a beam in this manner the metal is distributed pro-

portionally to the stresses. The slitting may be accomplished by any suitable means with the blank in heated or cold condition as may be found desirable.

After the slitting operation, the weight of each chord member is reduced by reducing the length of each gusset plate. This is accomplished by cutting off portions of uniform length at the opposite ends of each gusset plate. Spaced openings 9 are then formed in each plate 7 and correspondingly spaced openings 10 are formed in a plurality of diagonal members or struts 11 at the opposite ends thereof. The diagonal members are constructed of any suitable material, preferably steel, and are preferably L-shape in cross-section.

After the openings 9 and 10 respectively have been formed in the plates and diagonal members, the chord members are spaced apart the proper distance to construct a truss of standard width. The diagonal members are then arranged in pairs upon the gusset plates 7 so that the openings 10 register with the openings 9. The compression members are designated by the numeral 12 and are angularly disposed to the chord members while the tensioning members are designated by the numeral 13 and are oppositely disposed to the compression members. Bolts 14 or other suitable securing means engage the openings 9 and 10 and rigidly secure the diagonal members to the plates. The truss is strengthened further by securing vertical struts 15 to the gusset plates and chord members at the opposite ends of the truss.

While it is believed that from the foregoing description the nature and advantages of the invention will be readily apparent, I desire to have it understood that I do not limit myself to what is herein shown and described and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What I claim as my invention is;

1. The method of forming trussed structures comprising the splitting of a blank to provide separate chord members having spaced integral gusset plates, spacing the chord members a substantial uniform distance apart, and securing web members to said plates.

2. The method of forming trussed structures comprising the splitting of an I-beam to provide separate chord members having integral alternating projecting gusset plates, spacing the chord members a substantial uniform distance apart, and securing web members to said plates.

3. The method of forming trussed structures comprising the slitting of a blank to provide separate chord members having integral gusset plates, spacing the chord members a substantial uniform distance apart and securing web members to said plates.

In testimony whereof I affix my signature.

CHARLES H. FORK.