

Feb. 19, 1935.

J. KAHN ET AL

1,991,682

BUILDING TRUSS STRUCTURE

Filed Oct. 8, 1931

2 Sheets-Sheet 1

Fig. 1.

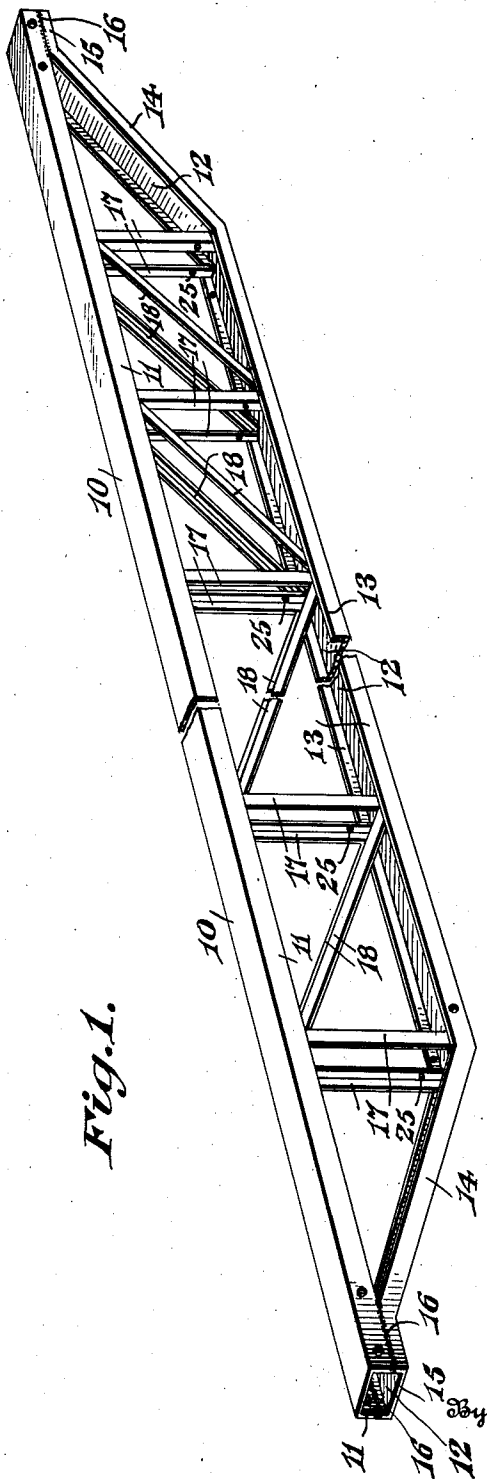


Fig. 2.

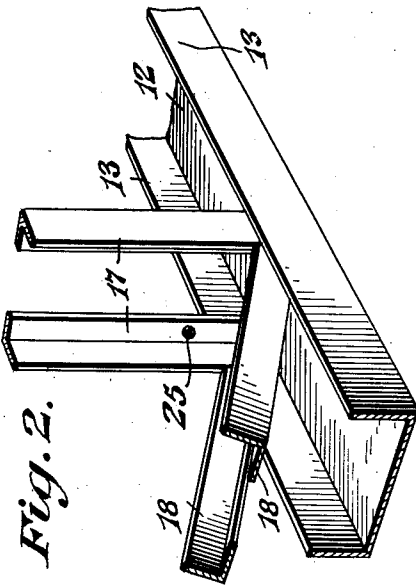
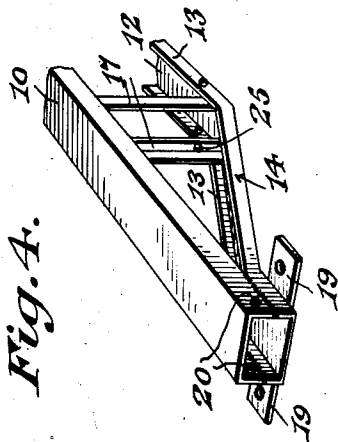


Fig. 4.



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Fig. 7.

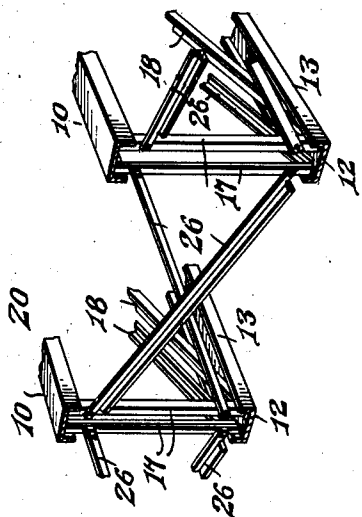


Fig. 8.

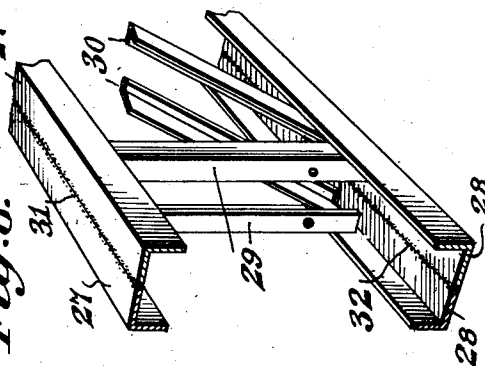


Fig. 3.

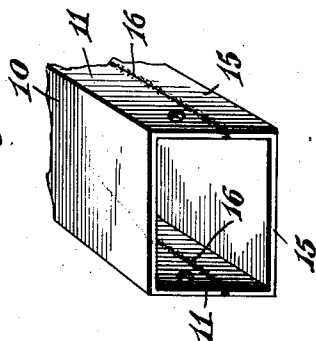


Fig. 9.

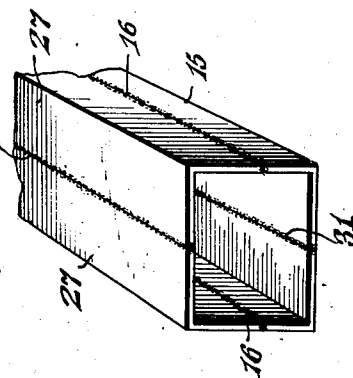


Fig. 5.

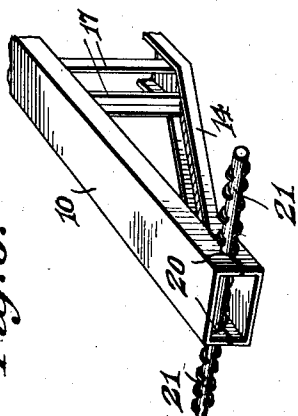
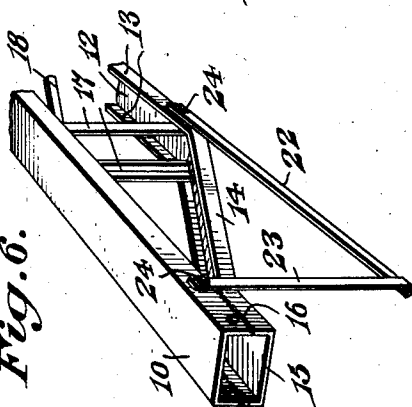


Fig. 6.



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UNITED STATES PATENT OFFICE

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BUILDING TRUSS STRUCTURE

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Application October 8, 1931, Serial No. 567,730

6 Claims. (Cl. 189—37)

The present invention relates to building trusses especially adapted for long spans and the object is to provide a novel structure which may be made relatively light in weight and yet is effectively reinforced so that the possibilities of deflection are reduced to a minimum and should there be a defect in an element, it will not materially affect the structure as a whole as there will be cooperating elements that will be sufficient to avoid failure due to such defect, thereby providing additional factors of safety.

A further and important object is to provide a structure of the character of skeleton formation so that pipes, conduits and the like may be laid through the same in any direction.

By providing a structure of this character adapted for use on long spans, unobstructed floor space of relatively great area is available, in that supporting columns and the links between the ends of the trusses are unnecessary.

In the accompanying drawings:—

Figure 1 is a perspective view of one embodiment of the invention.

Figure 2 is a detailed perspective view of a portion of the body of the truss, showing the form of the welded elements.

Figure 3 is a perspective view of one end of the truss.

Figure 4 is a detailed perspective view of an end portion showing a bearing plate thereon.

Figure 5 is a similar view but illustrating an anchor rod.

Figure 6 is a detailed perspective view illustrating how a bottom chord extension may be provided.

Figure 7 is a detailed sectional perspective view showing how bridging may be attached to the web elements.

Figure 8 is a perspective view of a portion of the body of a modified form of truss.

Figure 9 is a perspective view of the end portion of the truss shown in Figure 8.

Referring to the embodiment disclosed in Figures 1 to 6 inclusive, an upper chord member 10 is employed which is in the form of a metal channel bar having depending longitudinally disposed side flanges 11. A lower chord member also consisting of a metal channel bar is employed and is designated 12. This channel bar has its side flanges 13 arranged in upstanding relation beneath the corresponding side flanges 11 of the upper chord member 10. The lower chord member has its end portions upwardly inclined as shown in 14 and the terminals 15 are turned outwardly so as to lie parallel to the main portion

of the bottom chord and parallel to the end portions of the top chord 10. The end portions of the flanges 11 and 13 are abutted and welded together as shown in 16, so that the ends of the truss are tubular in form.

The spaced portions of the two chord members 10 and 12 are connected by a plurality of longitudinally disposed latticed webs. In the present construction these webs are formed of vertical angle bars 17 and diagonal angle bars 18. The elements 17 and 18 of each web have their ends welded to the inner sides of the corresponding flanges 11 and 13 of the two chord members.

It will be evident that a structure of this kind though light in weight is very strong, the chords being connected by two webs which are spaced apart and which aid in reinforcing each other so that should one of the elements thereof be defective for any reason, the other web will constitute a serviceable connection, thereby producing a high factor of safety. And as the webs are welded to the flanges of the chord members there is no liability of any such play or movement taking place as is apt to cause deflection. This makes the structure particularly useful on long spans though obviously it is not necessarily limited thereto, as the truss may be valuable on short spans where heavy loads are to be carried. Furthermore by having a skeleton form of structure the space between the chord members is available for the passage of pipes, conduits and the like.

That the structure lends itself to a variety of supports will be observed by reference to Figures 4 and 5. In Figure 4 a bearing plate 19 is shown welded on the underside of the tubular end of the structure thereby providing an extended surface for supporting the truss. When the end is to be embedded in a wall, openings are provided as shown in 20 in which are inserted anchor rods as shown in 21. The structure also lends itself to the employment of bottom chord extensions where a finished ceiling is to be provided. As shown in Figure 6 this bottom chord extension is shown in the form of two right angularly disposed bars, 22 and 23 joined at their meeting ends and having their free ends secured, as illustrated at 24, to one of the flanges of each of the top and bottom chords.

By employing web elements 17 in the form of angle bars, bridging between adjacent trusses is practicable and is easily applicable. As will be noted, each of the angle bars has one of its flanges faced against and welded to the flanges of the top and bottom chords thus causing the other flange of each of the bars 17 to be disposed

transversely to the truss. By providing the latter flanges with holes as shown in 25 and placing bridging 26 between adjacent trusses (see Figure 7) the ends of such bridging bars can be secured by fasteners passed through their ends and through the openings 25.

A modified form of connection is illustrated in Figures 8 and 9. This may be useful in the manufacture of trusses though the completed structure is substantially the same as that already described. In the modification the upper chord is made of angle bars 27 and the lower chord is made of angle bars 28. Each of the two webs consisting of the vertical bars 29 and the diagonal bars 30 connect corresponding angle bars 27 and 28 by being welded to the inner sides of the upright flanges. The horizontal flanges of the angle bars 27 are abutted and welded together, as shown in 31, thereby producing a channel bar that forms the complete upper chord. Likewise the lower bars 28 have their horizontal flanges welded together as illustrated in 32 providing a lower chord member in the form of a channel bar. This structure it will be observed can be made in sections, that is too say, each set of angle bars 27 and 28 may have its web welded thereto and afterwards the sections can be assembled and welded at 31 and 32, producing the finished truss.

What I claim is:

1. A metal truss structure comprising chord members consisting of channel bars having their flanges in opposition, the end portions of said opposing flanges being welded together and forming tubular truss ends, the intermediate portions of said bars and their flanges being spaced apart, and latticed webs extending across the space between and being welded to the corresponding flanges of the channel bars between the welded together ends.

2. A metal truss structure comprising chord members, each consisting of a plurality of angle bars, and a plurality of latticed webs, each web uniting a flange of an angle bar of one chord member with the corresponding flange of an angle bar of the other chord member, the other flanges of the angle bars of each chord member being in opposing relation and directly connected together.

3. A metal truss structure comprising chord members each consisting of channel bars formed

of a plurality of angle bars having flanges laid edge to edge and welded together, the other flanges being inset, and a plurality of webs of latticed formation connecting the sides of the chord members and welded respectively to the corresponding inset flanges of the opposite angle bars.

4. A metal truss structure comprising chord members, each chord member consisting of angle bars having certain flanges located in substantially the same plane and united and other flanges located in parallel planes substantially perpendicular to the plane of the united flanges, the parallel flanges of one chord being disposed in opposition to the corresponding flanges of the other chord and spaced therefrom, and spaced lattice webs uniting the chords, said webs being each united to one set of the opposing flanges of the chord members, and said webs thereby connecting different angle bars of the chords.

5. A metal truss structure comprising chord members, each chord member consisting of angle bars having certain flanges located in substantially the same plane and united and other flanges located in parallel planes substantially perpendicular to the plane of the united flanges, the parallel flanges of one chord being disposed in opposition to the corresponding flanges of the other chord and having their intermediate portions spaced therefrom, and spaced lattice webs uniting the spaced portions of the chords, said webs being each united to one set of the opposing flanges of the chord members, and said webs thereby connecting different angle bars of the chords, and the end portions of the angle bars of both chords being brought together and directly united to form tubular ends to the truss structure, of which the respective angle bars form the corner portions thereof.

6. A metal truss structure comprising chord members consisting of channel bars having their flanges in opposition with the end portions thereof directly joined together, providing box ends for the structure, said flanges having their intermediate portions spaced apart, and a plurality of latticed webs respectively connecting the spaced apart opposing portions of the flanges of the channel bars.

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