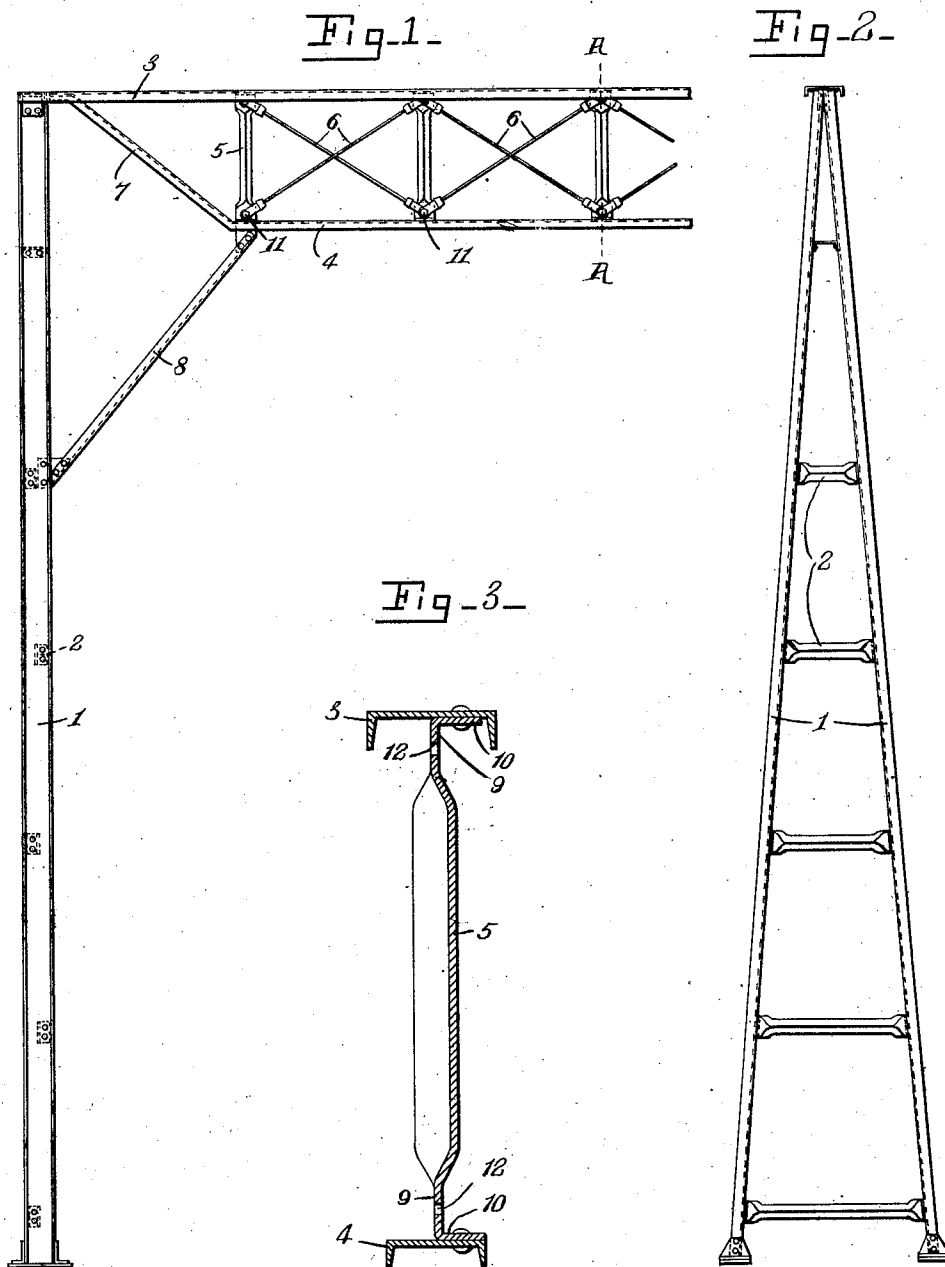


R. L. ALLEN.
 BRIDGE FOR SUPPORTING TROLLEY WIRES BY MEANS OF THE CATENARY SYSTEM.
 APPLICATION FILED AUG. 27, 1909.

974,225.

Patented Nov. 1, 1910.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT L. ALLEN, OF SYRACUSE, NEW YORK, ASSIGNOR TO ARCHBOLD-BRADY COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

BRIDGE FOR SUPPORTING TROLLEY-WIRES BY MEANS OF THE CATENARY SYSTEM.

974,225.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed August 27, 1909. Serial No. 514,936.

To all whom it may concern:

Be it known that I, ROBERT L. ALLEN, of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Bridge for Supporting Trolley-Wires by Means of the Catenary System, of which the following is a specification.

My invention relates to steel structures and has for its object the production of a particularly simple and efficient bridge for supporting trolley wires by means of the catenary system; and it consists in the combinations and constructions hereinafter set forth and claimed.

In describing this invention reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figure 1 is an elevation, partly broken away, of my bridge. Fig. 2 is an elevation looking to the right in Fig. 1. Fig. 3 is a section on line A—A, Fig. 1.

The towers of this bridge for supporting trolley wires by means of the catenary system are alike in construction and the truss thereof is connected to both in the same way, hence but one tower and one end of the truss is illustrated. Each tower usually comprises two main channel-iron elements or posts 1 spaced apart at their bases and converging toward their upper ends, and members 2 interposed between the main elements.

The truss consist of upper and lower elements or chords 3 and 4, posts 5 and diagonal members 6 between the chords. The upper chord 3 extends from one tower to the other in the usual manner, and the lower chord 4 is arranged with its intermediate portion extending substantially parallel to the upper chord 3 and with each of its end portions 7 converging upwardly toward the upper chord and being connected thereto at the tower. A knee brace 8 is interposed between the main elements 1 of the tower and the lower chord 3. The chords 3 and 4 are usually formed of channel-iron.

The posts 5 of the truss are formed of angle-iron V-shaped in cross-section and the end sections thereof are flattened at 9 and the outer end portion 10 of each flattened section is bent at an angle to the remaining part of said section. These bent portions 10 are secured by rivets or other means to

the webs of the channel-irons constituting the upper and lower chords 3 and 4. The upper end of each post 5 is connected to the lower end of the next post 5 by a diagonal member or tie-piece 6, said diagonal members being secured to the flattened sections 9 of the posts by means of pivots or bolts 11 extending through said members and through transverse apertures 12 in the flattened end sections 9.

The members 2 of the towers are of substantially the same construction as the posts 5 but are not usually connected by tie-pieces.

Although my invention is embodied in a bridge for supporting trolley wires by means of the catenary system, obviously it may be embodied in other forms of steel structures.

What I claim is:—

1. A truss comprising upper and lower chords, posts of angle-iron interposed between the chords, each post having its end sections flattened and secured to the chords, and a diagonal member connecting the upper end of each post with the lower end of the next post, the diagonal members being secured to the flattened end sections of the posts, substantially as and for the purpose described.

2. A truss comprising upper and lower chords, and posts of angle-iron interposed between the chords, each post having its end sections flattened, and each flattened end section having its outer portion bent at an angle to the remaining part of said flattened section and secured to one of the chords, substantially as and for the purpose specified.

3. A truss comprising upper and lower chords, posts of angle-iron interposed between the chords, each post having its end sections flattened, and each flattened end section having its outer portion bent at an angle to the remaining part of said flattened section and secured to one of the chords, and a diagonal member connecting the upper end of each post with the lower end of the next post, the diagonal members being secured to the flattened sections of the posts, substantially as and for the purpose set forth.

4. A steel structure comprising opposing main elements spaced apart and members connecting the main elements, said members being formed of angle iron and each member having its end sections flattened, and

each end section having its outer portion bent at an angle to the remaining part of said flattened section and secured to one of the main elements, and diagonal members
5 connecting the formed members, the diagonal members being secured to the flattened end sections of said former members, substantially as and for the purpose specified.

5. A bridge for supporting trolley wires
10 by means of the catenary system comprising towers spaced apart, a truss connecting the towers, the truss comprising upper and lower chords formed of channel-iron, the upper chord extending from one tower to the other, and the lower chord having its
15 intermediate portion extending substantially parallel to the upper chord, and each of its end portions converging toward the upper chord, posts interposed between the chords and formed of angle-iron, each post having
20 its end sections flattened and each flattened

end section having its outer portion bent at an angle to the remaining part of the flattened section and secured to the web of one of the chords, and a diagonal member
25 connecting the upper end of each post with the lower end of the next post, the diagonal members being secured to the flattened sections of the posts, and a knee brace connecting each tower and the lower chord,
30 substantially as and for the purpose set forth.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse, in the county
35 of Onondaga, in the State of New York, this 17th day of August, 1909.

ROBERT L. ALLEN.

Witnesses:

E. K. SEEMILLER,
FREDERIC G. BODELL.