UNITED STATES PATENT OFFICE.

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BRIDGE FOR OVERHEAD TRAVELING CRANES.


To all whom it may concern:

Be it known that I, CLARENCE L. TAYLOR, of Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Bridges for Overhead Traveling Cranes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in bridges for overhead traveling cranes. Heretofore in bridges of this type, the bridge girders have been mounted at their ends on the top surfaces of the end carriages which are usually made in a single casting. Such construction is objectionable in many instances where the head room is limited, and more costly to assemble, owing to the fact that the construction of the end carriages precludes the use of riveting machines.

The object of my present invention is to provide a bridge with structural end carriages, the bridge girders being built into the end carriages, and forming a part thereof, thereby permitting riveting machines to be used in securing the parts together, and also bringing the girders down to the plane of the tops of the end carriages, thus reducing the height of the bridge a distance equal to the depth of the girders.

With these and other ends in view my invention consists in the parts and combinations of parts as will be more fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in end elevation of my improved crane bridge. Fig. 2 is a view in plan partly in section of one end carriage and parts of the bridge girders. Fig. 3 is a view on the line x x of Fig. 2 and Fig. 4 is a view in side elevation of Fig. 2.

The bridge is composed of two end carriages connected by two girders, but as the two ends of the bridge are alike, a description of one end will be sufficient to enable the invention to be understood.

The end carriages 1 are each made up of a series of plates, angle irons, and channels, and in the present instance I have shown the outer member composed of a single plate 2, and the bottom 3 and top 4 each of a single channel iron riveted to the side plate 2 as shown in Fig. 1. The inner member of the end carriage is composed of three plates 5, 6 and 7, riveted to the top and bottom channel, the plate 5 being separated from the plates 6 and 7 for the entrance of the ends of the girders 6. The girders shown are of box form, but they may be I-beams, and are provided with upper and lower laterally projecting flanges at each side, as shown in dotted lines in Fig. 1, and in assembling the parts, are placed with their ends within the spaces intermediate the plates 5 and 6 and 5 and 7, and on the bottom plate 3 as clearly shown in Fig. 2. The girders are mounted on and secured to the end carriage before the top channel 4 of the side carriage is riveted to the side members, and are secured to the outer member 2 of the carriag e by riveting the angle irons 8 thereto, the latter having been previously riveted to the side members of the girders.

The spaces intermediate the plates 5 and 6 and 5 and 7 are sufficiently large for the free and ready entrance of the ends of the bridge girders, and after the latter have been properly placed, and before or after the angle irons 8 have been riveted to the outer member 2 of the carriages, the plates 5, 6 and 7 are connected by riveting, with the side members of the girders by the angle plates 9, which in the present instance are channels with one flange removed. As shown in Fig. 2 a channel plate 10 is located within the girder in line with the inner members 5-6 and 7 of the end carriage, so as to make the inner member of the carriage continuous from end to end, and also to take care of the stresses to which the parts are subjected. If the crane be a ladle crane having separated main I-beam girders on each side between which the hoist chains depend as in Patent 821,136 granted The Morgan Engineering Co., May 22nd, 1906, the channel plates 10 would be located between each pair of separated girders. After the bridge girders and carriages have been assembled and secured together, the top plates at the ends of the girders (if the latter be box girders) are placed in position and riveted in place, after which the top channel 4 is riveted in place.

With this construction and method of assembling all the parts to be connected are exposed and accessible thus permitting the use of a portable riveting machine.

The side members of the carriage are cut
away at their lower outer ends to receive the axle boxes 11 carrying the axle 12 of the bridge wheels 13. The axles rest against the removable bearings 14 which are supported by angle plates 15, which latter in turn are carried by and secured to the angle plates 16 and 16° riveted to the side members of the carriage. By this arrangement the axles rest in a plane well above the lower edge of the carriage thus bringing the latter well down over the rails on which the bridge travels.

This bridge, if a small one, may be assembled on the floor and then lifted onto the runway, or if too large to be handled as a whole, may be assembled on the runway.

To further strengthen the connection between the girders and end carriages, I connect the girders adjacent to the end carriages to each other and to the end carriages by the channel beams 17 which are riveted to the top flanges of the girders and to the inner flange of the top channel 4, and I also brace the ends of the end carriages by the triangular plates 18 which are riveted to the top flanges of the beam and the inner flange of the top channel beam 4.

By employing structural end carriages, I not only reduce the height of the bridge, but provide means for more securely uniting the girders to the end carriages, thereby greatly simplifying the work of assembling the parts and considerably reduce the cost of manufacture.

It is evident many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described, but, having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:

1. A crane bridge comprising structural end carriages, and girders, the latter passing through the inner members of the carriages and secured to said inner members and also to the outer members.

2. A crane bridge comprising structural end carriages and girders, the latter passing through the inner members of the carriages and secured to said inner members and also to the outer members, the top of the girders being approximately in the plane of the top of the end carriages.

3. A crane bridge comprising structural end carriages and girders the latter passing through the inner members of the end carriages resting on the bottom members, and secured to said inner members and to the outer members.

4. A crane bridge comprising structural end carriages, girders passing through the inner members of the carriage and secured to the outer members and also to the inner members, and bracing members within the girders in line with the inner members, of the end carriages.

5. A crane bridge comprising structural end carriages, the inner members of which are made in sections, girders passing between the section of the inner members and secured thereto and to the outer members and channel plate located within the girders approximately in line with the inner members of the end carriages.

6. A crane bridge comprising structural end carriages the inner members of the latter being in sections, girders passing between the sections of the inner members, and secured to the latter and to the outer members, and resting on the lower members, bracing plates located within the girders approximately in line with the side members of the carriages, the top of the end carriages being in a plane above the tops of the girders.

7. A crane bridge comprising structural end carriages, bridge girders passing through the inner members of the end carriages and secured thereto and to the outer members, and a brace connected at its ends to the girders and also connected to the end carriage.

8. A crane bridge comprising structural end carriages, the inner members of which are in sections, the edges of the latter adjacent to the girder openings being flanged, and girders passing between the section of the inner members and secured thereto and also to the outer members.

9. A crane bridge comprising structural end carriages and girders passing through the inner members of said carriages and secured thereto and to the outer members, the ends of the end carriages having overhanging reinforced shoulders to receive and support the axle bearings.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

CLARENCE L. TAYLOR.

Witnesses:
N. C. FETTERS,
D. C. SCHULTZ.