

*Floor.* The rails were directly supported by 8" x 12" x 14' bridge ties resting on the steel stringers, every fourth tie being 16 ft. long to support the plank footway placed outside the guard timber for the convenience and safety of the section men. An outside guard timber 8" x 9" dapped 1" over the ties, which were spaced four inches apart in the clear, the ties were secured to the stringers by 3" hook bolts, and the guard timbers bolted through the tie with one 3" bolt in every fourth tie. A steel guard rail 60 lbs to the yard will be placed inside the gauge line, and eight inches therefrom in the clear, these guard rails coming together at the center of the track one rail length beyond the end of the bridge and being protected by a cast steel point fitting the rail section and spiked to the road-bed ties.

*Erection.* Actual erection began July 27th, 1910; the steel was all assembled and last span swung February 8th, 1911, and all riveting and painting fully completed by August 19th, 1911. Material was unloaded at a siding at the west end and handled by a two boom derrick car in the storing yard. A light locomotive standard gauge with lorry cars handled the material from the storage yard to end of steel. The main feature of the erection outfit was the 30 ton two boom erection derrick, travelling on the top flanges of the girders, the trucks of the traveller running on 115 lb. crane rail, the base of which rested on timber temporarily secured to the girder flanges. This derrick was self propelling by means of a chain and sprocket connecting the trucks with the erecting engine, which consisted of two 10" x 12" cylinders, two drum 4 spool hoist. The 115' 0" booms were box section composed of 4 36" x 1" web plates at center section and tapering at the end, connected with four 3½ x 3½ x 4 angles. This section was found to weigh actually less than a latticed section and the combined unit stresses from compression and bending were very much reduced. The writer was told that the men working on the traveller, and assembling, were very enthusiastic over the ease with which the big machine handled its work. The wind at the deck of the trestle was very strong, and was generally blowing at right angles to the bridge, but the work was practically never held up on account of too much wind. The use of the erection struts is shown in the drawing, (Plate 10), and photograph, (Fig. 2); after a tower and its girders were assembled the erection struts were removed and used again to stiffen the first bent of the next tower until it too was connected and self sustaining. The hook bolts temporarily connecting the ends of three struts with the columns proved very efficient.

Another important feature was the use of riveting bridges for convenience and safety of the men in assembling, riveting, and painting. From a general drawing of these bridges, (Plate No. 6), and from the photographs, (Figs. 6, 7, and 8), the method of hand-