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MOVING A BRIDGE BY RAIL.

We illustrate in this issue a very interesting operation, the transporting by rail of a plate girder railroad bridge. The American type of truss bridge is distinctively a built-up, pin-fastened structure, all of whose members are of comparatively light weight. Such bridges are put together *in situ*. The present bridge of the plate girder type represents the English style of riveted construction.

The general appearance of the bridge is shown in the illustration. It is a single track through span skew bridge with center pier. It is carried by four girders of identical dimensions. The girders were put together at the factory, and were taken to the place of erection on cars. This operation is the one which we specially illustrate.

Each girder was 123 feet long and 9½ feet high, weighing 46 tons. To each of them four cars were

allotted. The four cars were coupled together, and on the end ones of each group of four cars a framework was laid, comprising three cross members and two longitudinal members. On these frameworks the ends of the truss rested. Thus the weight of the truss was carried by the two end cars only. They were carried by the center transverse members of the frame. To keep them upright, two diagonal braces of wood were arranged at each end. These were secured at the top by a strap crossing the top of the girder. Long bolts ran down by the sides of the braces, binding all firmly together. Short chocks of angle iron on the longitudinal sleepers acted to brace all in place. As the cars took curves, the girders had sufficient freedom of motion to yield to the motion.

The two middle or intermediate cars were only present as a matter of security, and possibly might be called upon to prevent separation of the end cars if

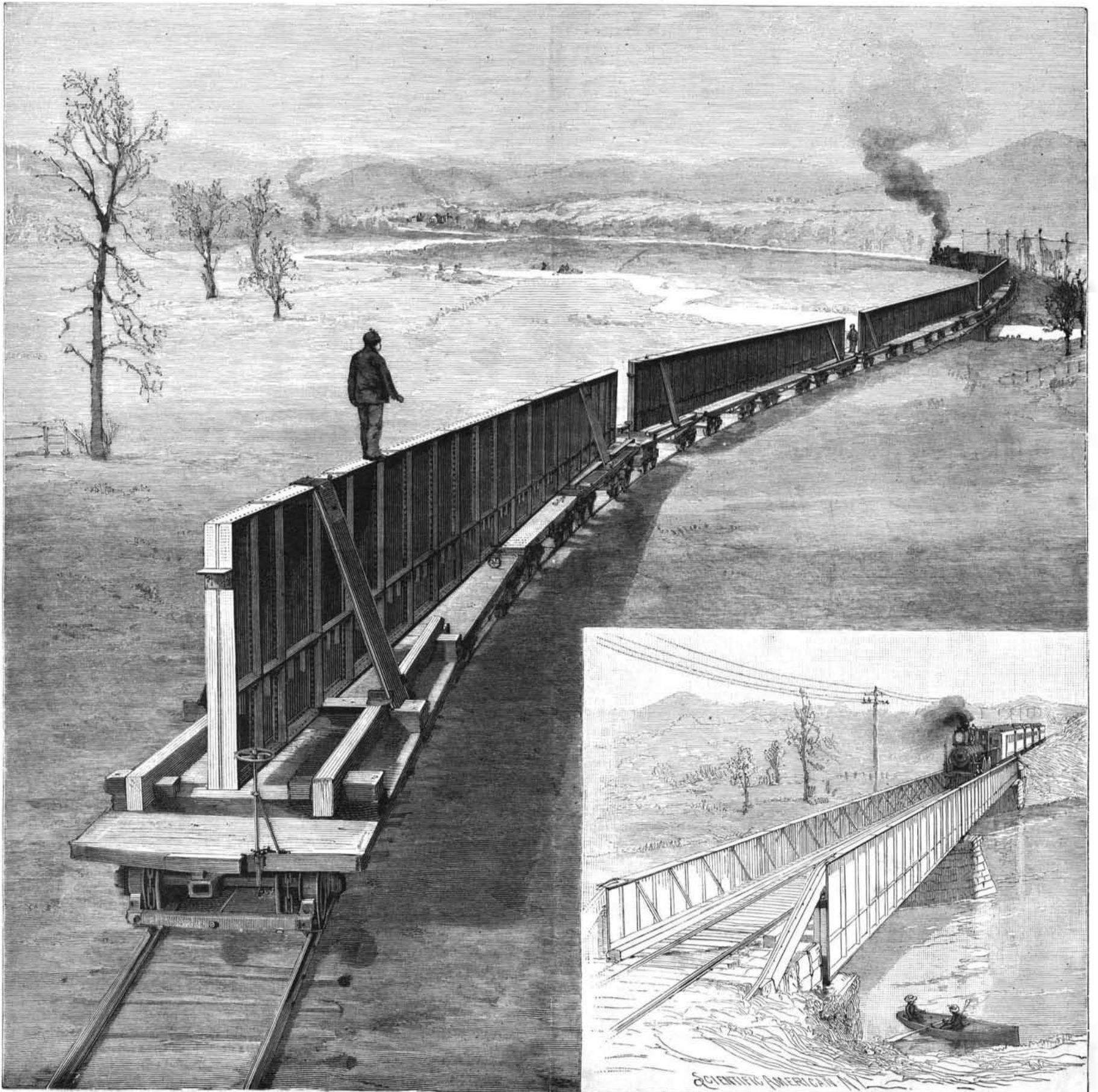
the weight of the girder and its bracing did not develop sufficient coupling power. Thus each end car had to carry a weight of twenty-three tons.

As there were four girders, sixteen cars were used in their transportation. A seventeenth car was included in the train, which car was loaded with the smaller portions of the structure, bolts, tools, etc.

The bridge was built by the Elmira Bridge Company. It was shipped on December 6, 1892, from Elmira to Wallingford Junction on the tracks of the N. Y. C. R. R. and thence *via* R. W. & O. R. R. to Ogdensburg. It reached its destination December 9.

As shipped, the total height from the top of the rail to the top of the girder was about 14 feet 9 inches.

Our thanks are due to Mr. G. H. Thompson, civil engineer of the New York Central Railroad, for information concerning his transportation of this bridge.



TRANSPORTATION OF FOUR BRIDGE GIRDERS BY RAIL—THE BRIDGE AS COMPLETED.