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POINT BRIDGE, PITTSBURG, PA.

We give an engraving of the Point Bridge over the Monongahela River, at Pittsburg, Pa., built by the American Bridge Company, from the designs of Mr. Edward Hemberle, one of the engineers of the company.

Pittsburg is eminently a city of bridges—necessarily so on account of the three large rivers flowing through her limits. While some of them are of humble pretensions, others will compare favorably with bridges to be found anywhere. The Point Bridge was formally opened on March 31, 1877.

The structure is the first example of a stiffened chain suspension bridge of long span, and differs considerably from others in existence. The chain is designed as a catenary, and takes up all the permanent load of the structure without bringing strains on the stiffening trusses. This object was accomplished by erecting the bridge completely before connecting the ends of the straight top chords to the center joint. The tie rods are provided with turn buckles, and are so adjusted as to be strained under moving loads only. When the bridge is half loaded, the top chords of the trusses on the loaded side is in compression, and of the unloaded side in tension. The maximum strains for the different members of the trusses occur under different positions of the moving load.

There are lateral and vibration braces between the top chords, and also between the chains, proportioned to take up the strains from wind pressure upon chains and trusses. The floor is 34 feet wide between the stiffening girders,

which are 8 feet high, forming the hand rails. The stiffening girders have expansion joints every 100 feet, and are suspended from the chains by flat bars 20 feet apart. At the expansion joints there are struts instead of suspenders, in order to make a rigid connection between the roadway trusses and the chains. Cross girders 3 feet in depth connect the stiffening girders every 20 feet, and support two lines of iron stringers. These stringers and the roadway trusses form the bearers across which are placed the wooden joists for the flooring.

The lateral stiffness of the floor is secured by a double system of tie rods, and the wind pressure is taken up by horizontal steel wire cables, placed under and connected to the floor.

The towers are entirely of wrought iron, except the bases of the columns. The columns are 30 inches square each, are connected by lattice bars and form the tower. The chains are carried over the top of the tower on wrought iron chairs or saddles, which are movable on rollers to allow for expansion and the elongation of the back chains under strain.

The bridge is proportioned for a moving load of 1,600 lb. per lineal foot, under which, together with the weight of structure, the chains are strained to 12,000 lb. per square inch, sectional area. The suspenders and roadway members are strained only from 8,000 to 10,000 lb. per square inch. The maximum compressive strains in the towers are 9,000 lb. per square inch.

The bridge consists of three spans. The center span is 800 feet and the end spans 145 feet each—the total length

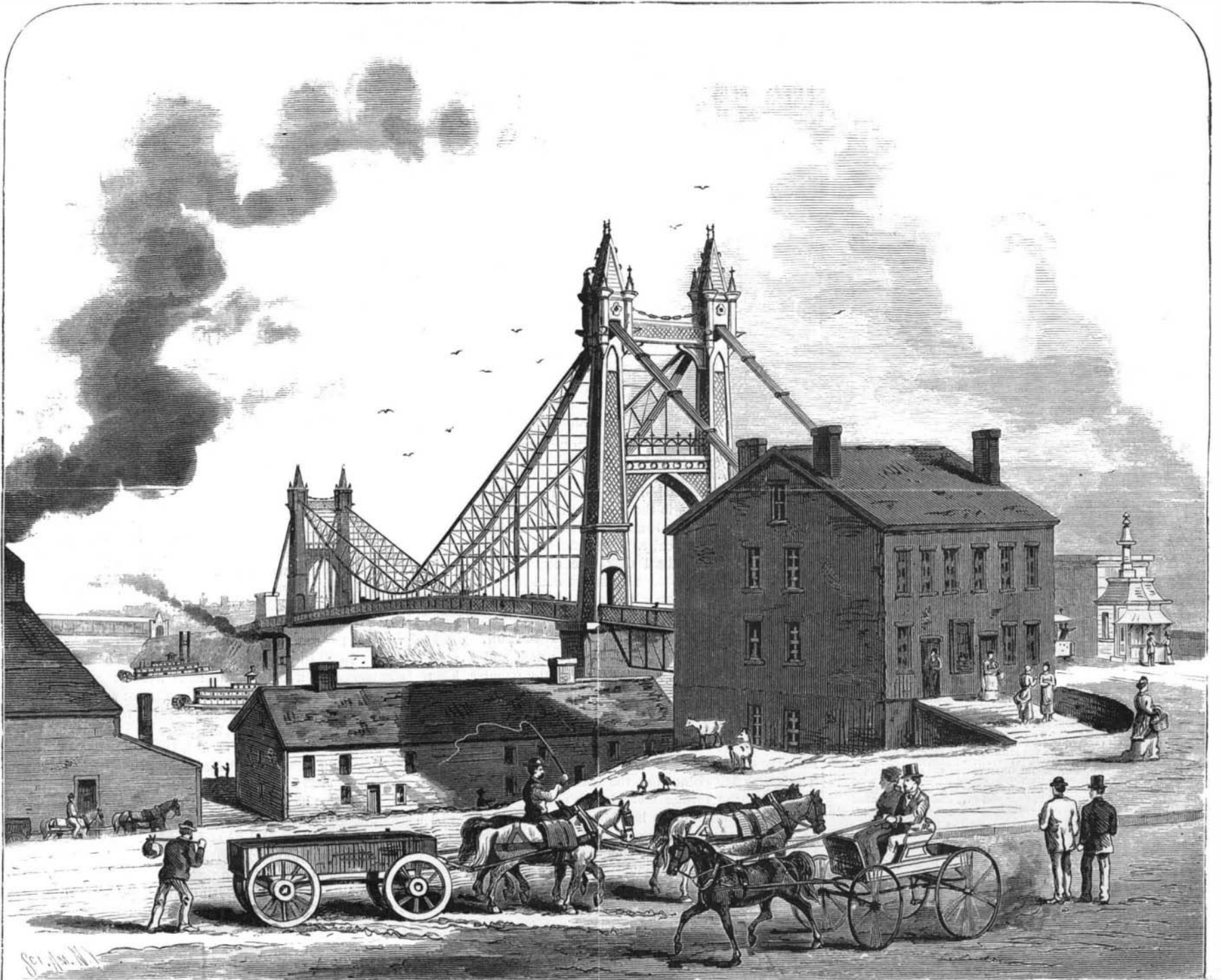
from back to back of the anchorage being 1,245 feet. The roadway rises from each end, and at the center of the channel is 83 feet above low water. The saddles on top of the towers, upon which the chains rest, are 180 feet above low water, and the deflection of the chain is 83 feet. The floor is divided by iron hand rails into a 21 foot wagon way, and two 6½ foot sidewalks. The piers are built of Baden sandstone laid in cement. There are two chains, one on each side of the bridge. The links are formed of from eleven to fourteen bars, 20 feet long and 8 inches by 2 inches to 8 inches by 1 inch in size, and are connected by 6 inch pin bolts, the same bolts also connecting the links.

The material used: Timber in foundations, 4,442 feet, board measure; masonry in anchor walls, 10,868 cubic yards; masonry in piers, 7,507 cubic yards; iron in foundations, 12 tons; wrought iron in superstructure, 2,084 tons; cast iron in superstructure, 52 tons; steel in superstructure, 32 tons; timber in superstructure, 810,000 feet, board measure; number of links in the chains, 1,832.

The cost of the bridge was \$525,000, and although it was erected by a Chicago company, nearly all the ironwork was done by Graff, Bennet & Co., of Pittsburg.

The Fastest Trotting on Record.

The fast trotters, Maud S and St. Julien, both surpassed the best time on record for one-mile heats, at Rochester, N. Y., August 12. The time was 2 minutes 11¼ seconds. This wonderful speed was exceeded August 27, at Hartford, Conn., by St. Julien. Distance, one mile; time, 2:11¼.



THE POINT BRIDGE PITTSBURG, PA.—BUILT BY THE AMERICAN BRIDGE COMPANY.