ENGLISH

versus

American Bridges.

1874.
THE RAILROAD GAZETTE,
New York.

The American Bridge Company,

CHICAGO.

NEW YORK. PITTSBURGH.

OFFICES:

EASTERN OFFICE, *20 Nassau Street, New York.*

GENERAL OFFICE, *210 La Salle Street, Chicago.*

Office in Pittsburg: during construction of Point Bridge.

Capital Stock (full paid) $600,000.

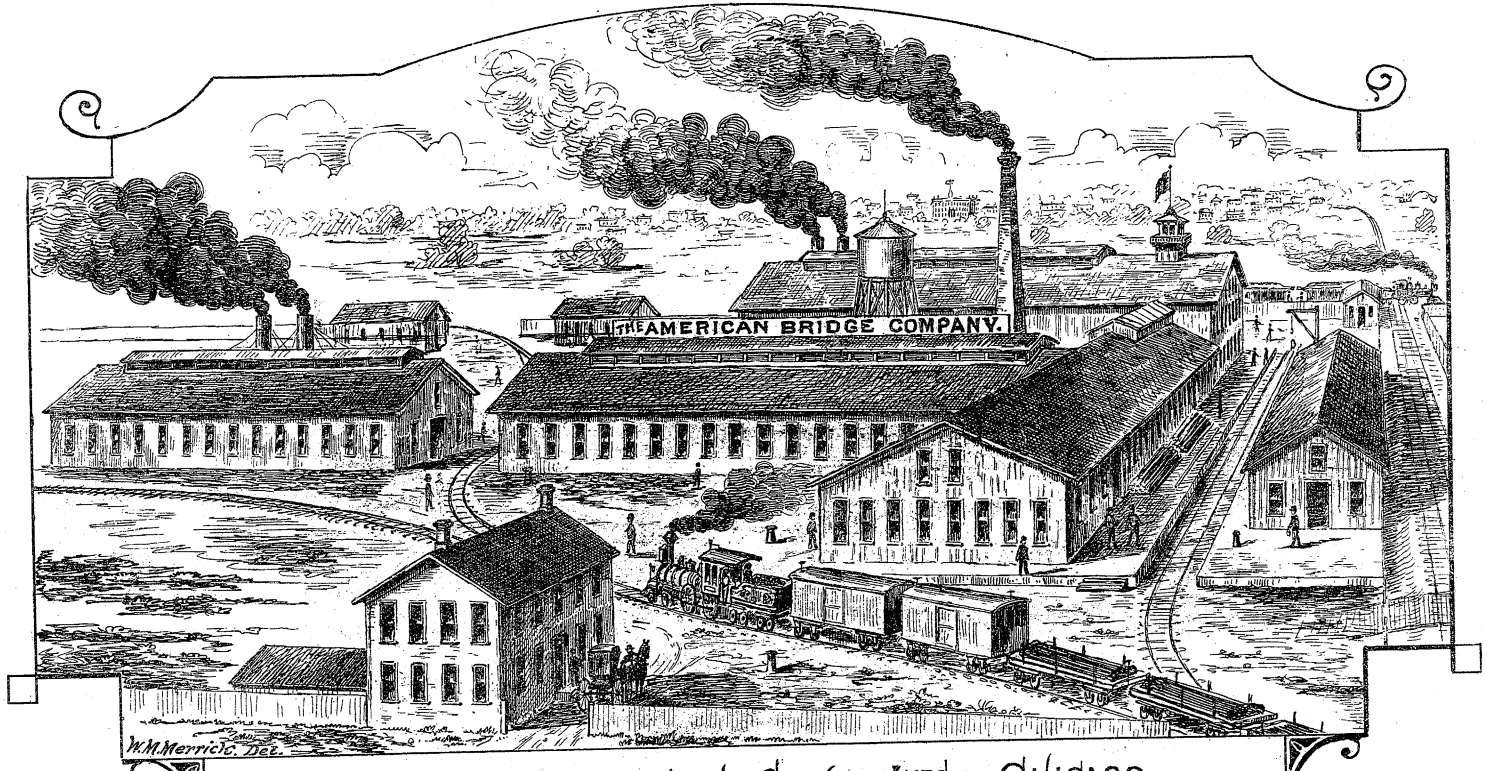
OFFICERS:

A. B. STONE, *President, 20 Nassau St., N. Y.*

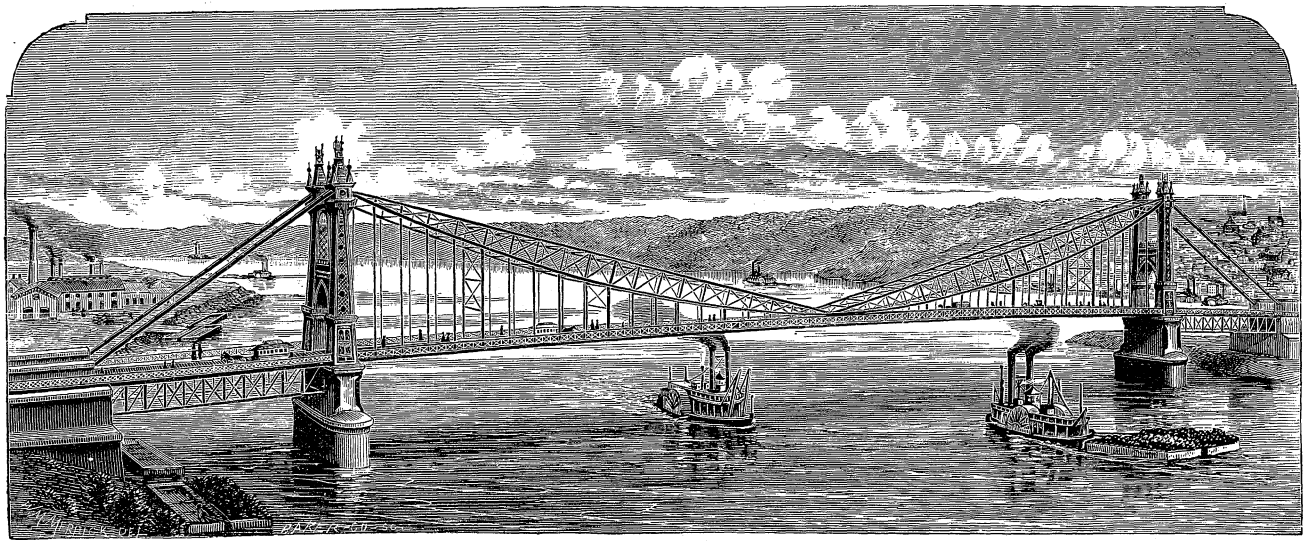
H. A. RUST, *Vice Pres't and Gen. Manager.*

EDWARD HEMBERLE, W. G. COOLIDGE, *Sec'y.* } *Engineers.*

JOHN F. BARNEY, *Mech'l Superintendent.*



WORKS: CORNER EGAN AND STEWART AVES. - CHICAGO.



POINT BRIDGE.

U. S. CENTENNIAL EXPOSITION,

PHILADELPHIA, 1876.

THE AMERICAN BRIDGE CO.'S EXHIBIT.

Location:—Machinery Hall—Section D, 4, Column D, 33 and 34.

MODEL OF POINT BRIDGE ACROSS THE MONONGAHELA RIVER, AT PITTSBURGH, PA.

Scale of Model.—One sixty-fourth ($\frac{1}{64}$) of the full size of the Bridge. The model represents a Stiffend Chain Suspension Bridge with a Center Span of 800 feet, which is now in process of construction across the Monongahela River at Pittsburgh, Pa. The Bridge was designed by Edward Hemberle, Engineer of The American Bridge Company, which company are now building the bridge at a cost of $500,000.

The center span is 800 feet center to center of towers, and the side spans are 145 feet each in the clear. The height of the towers above low water is 180 feet, and the deflection of the chain is 88 feet. The roadway is 20 feet wide with double tramways, and one track for a narrow gauge railway; outside of the roadway are sidewalks six feet wide each. The piers and anchorages are founded upon timber platforms sunk to a gravel bed. The masonry is of best quality Baden sandstone.

The superstructure will be the first example of a stiffened chain suspension bridge of long span, and will differ considerably from others in existence. The chain is designed as a catenary, and will take up all the permanent load of the structure without bringing strains on the stiffening trusses. This object will be 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 will be 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, will be 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 roadway girders which are 8 feet high, forming the hand-rails. The roadway 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. The 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 will be 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 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 pounds per lineal foot, under which, together with the weight of structure, the chains will be strained to 12,000 lbs. per square inch, sectional area. The suspenders and roadway members are strained only from 8,000 lbs. to 10,000 lbs. per square inch. The maximum compressive strains in the towers are 9,000 lbs. per square inch.

The bridge will be finished by the end of this year.

MODEL OF BRIDGE PIERS SUNK BY THE PNEUMATIC PROCESS.

The model represents an Iron Pier as built for Missouri River Bridges at Leavenworth, Kansas, and Boonville, Missouri, and a Stone Pier sunk upon a wooden caisson by the pneumatic process as built at various localities.

The American Bridge Company are the only contractors in the United States who are fully equipped for building pneumatic substructures, and the following lists of the most important pneumatic foundations which they have built, evidences their experience in such work; viz.,