

As the trusses are subject to a double deflection, the expansion of the lower chord under an increase of temperature operating in this way, as well as the strains produced by a load, they are built with a somewhat greater camber than is usually put in railroad bridges ; the camber of the 248 foot span is $8\frac{1}{2}$ inches, that of the 198 foot span 7 inches, and those of the 176 and 130 foot spans, respectively, $5\frac{1}{2}$ and $4\frac{1}{2}$ inches. These cambers, however, are materially in excess of any actual deflection.

In proportioning the trusses the central tie rods and the truss rods of the floor beams were allowed to bear a strain of 10,000 pounds to the square inch, each floor beam being supposed to take the greatest load which the drivers of a locomotive could possibly throw upon it, and no allowance being made for the stiffness of the timber under a transverse strain ; the strain in the end ties and chord-links was limited to 12,000 pounds per square inch, but no allowance was made for the reduction of strain which the curvature of the upper chord would make in the end panels of the web. This practice of allowing a greater strain per square inch on those parts which are fully strained only under a maximum load, than on those which are liable to be strained to the full calculated amount by any heavy locomotive, is believed to have originated with Mr. Albert Fink, and is thought to be a more accurate method of proportioning than the common one, which makes no difference in strain per square inch on the different parts under a maximum load. The strain upon the timber of the top chord was limited to 800 pounds on the square inch, the braces were proportioned by the well-known formula of Hodgkinson, seven being the factor of safety adopted. The assumed moving load was 2,240 pounds per running foot for the four longest spans, and 2,800 pounds for the 130 foot span.

The trusses are anchored to the piers by long rods of one and a half inch round iron, which, extending from the top chord, pass over cast-iron struts projecting outwards from the coping, and are fastened by nut and screw through the eye of a three-inch pin set fifteen inches into the masonry. The trusses are further stiffened by corner braces extending from the end posts to a cross stretcher overhead, and the three longest spans have sets of similar braces placed at intervals through their length.