

will be 214,133 pounds, requiring (at 10,000 pounds per square inch) 21 square inches in the cross-section of the rods, or in proportion if the strain should be increased or diminished.

This is a greater proportion of iron than is usually allowed, but it is not too great for security. The girders cannot oppose any direct resistance to a cross-strain without experiencing flexure; but a railroad bridge should be as rigid as possible, and therefore the rods should be depended upon to resist the whole of the tension, and act as the lower chords of an ordinary bridge. In this way the calculation becomes very simple, and furnishes safe practical results.

In the construction of trussed girder bridges, the stiffness would be greatly increased by the introduction of diagonal ties or braces in the middle rectangular interval, and with this addition, and proportioned upon the principles above illustrated, it becomes a safe, economical, and in every respect a good bridge for moderate spans.

THE END.