

Wrought iron is a very strong material in tension. In other words a wrought iron bar will offer very good resistance to attempts to stretch it by pulling outwards on its two ends. Consider for a moment the two main timber beams which form a shallow inverted 'V' in the bridge truss. The main longitudinal beams and hence the deck are attached to these beams.

The weight of a train on the bridge or indeed its own weight will tend to make the inverted 'V' open wider. However, if a suitable wrought iron rod is used (as here) to join the two ends of these beams then the 'V' will not open further and the structure is able to carry the load and not collapse. Brunel tested various designs of truss and was able to combine timber and wrought iron to the best advantage