there is an abundance of strength to meet it. What I consider of most importance to the durability of the cables is, the fact that their strength is nearly six times as great as their ordinary working tension, and equally important is the fact, that their strength will never be impaired by vibration. In calculating the strength of Suspension Bridges, it has been customary to allow from three to five times of ultimate strength, for the support of a maximum tension. This is a good rule, provided the maximum load bears a large proportion to the weight of the structure. But if this proportion is small, as must be the case in Railway Suspension Bridges, it is a bad rule, as it allows too little strength for the permanent and ordinary tension.

There are 624 suspenders, each capable of sustaining thirty tons, which makes their united strength equal to 18,720 tons. The ordinary weight they have to support, is only 1000 tons. A locomotive of thirty-four tons weight, including tender, spreads its weight by means of the girders and trusses, over a length of no less than 200 feet. Of course the greatest pressure is under the engine, and is there supported by no less than twenty suspenders. If by any accident, a sudden blow or jar should be produced, the strength of suspenders will be abundant to meet it. Although the tension of the different suspenders is not by any means as uniform as that of the wires in the cables, it being impracticable to secure a perfectly uniform bearing; their strength is so abundant, that they will easily resist a hurricane, should they ever become exposed to such a trial.