

the concentration of a load of 200 tons in the centre of the arch, or ten locomotive engines of twenty tons each, to be piled one upon the other at that point.

This is a trial that few, if any, wooden bridges would bear: they would not only bend, but be broken in two; while on the bridge proposed, the only effect of the concentration of such a weight would be to increase the strain supported by each strand of wire about 50 pounds. But these strands would each bear an increase of nearly 1000 pounds, or 20 times this amount, before approaching the breaking point.

It thus appears that the effect of a weight which would crush any timber bridge that has yet been built, would be only to depress the flooring of this work an inconsiderable amount; and the moment the weight was removed, the flooring would return uninjured to its place.

When speaking of a depression of three feet in the centre of the arch, we are assuming an unheard of load—a weight of ten of the first class locomotives piled up on the centre of the platform. But no such load can be collected there. In practice the cars are stretched out upon the track, and a train of 200 tons would spread over a space varying from 500 to 800 feet.

Now there is a remarkable difference to be observed between the effect of a weight occupying the centre of the bridge, and that which would be produced by the same weight stretched along a considerable portion of the platform, in the manner of a rail-way train.