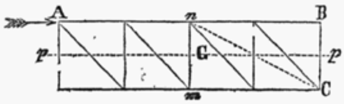
menced to yield, can arrest its progress, it cannot be doubted that the effect would be still more beneficial if introduced at the time of its construction.

To determine the strains upon the chords.

The maximum strain upon the chords of a straight bridge is in the centre; being one of compression on the upper chord, and of extension on the lower, its magnitude is represented by a force which, applied horizontally at A, would keep the half truss $A\,B$ from falling.

If the bridge be uniformly loaded, the centre of gravity will be vertically under n, the middle point of $A\,B$, and if w represent the uniform weight, its moment in reference to the point of rotation C will be $w \times m\,c$, or if s represent the span it will be $\frac{w\,s}{4}$. An accidental load will produce the greatest strain at the centre; its leverage will then be $\frac{1}{2}\,s$ and $w' \times \frac{1}{2}\,s = \frac{w'\,s}{2}$ = moment of the accidental load.

FIG. 58.



The sum of these moments will be $\frac{w + 2\,w'}{4}\,s$.

The horizontal force at A acts with a leverage $B\,C = h$, its moment will therefore be $H\,h$. Hence $H = \frac{w + 2\,w'}{4\,h}\,s$ = the force which measures the tension at the lower, and the compression at the upper chord.

The same result would be obtained by referring the moments to a neutral axis passing through the middle of the truss; and although not quite so simple, this is in some respects the best way of considering the question, as there are in fact two forces, one at the upper, the other at the lower chord, acting