The chains $hb$, $hc$, $hd$, &c., should be supported at suitable intervals, to prevent them from assuming a curved form, by which they would, in a measure, be liable to the same difficulties from undulating motion as the common suspension bridge; though to a much less degree. This support may be given to the chains by vertical rods or studs running up from the platform, or by a curved chain $hmni$, from which those below may be suspended, and those above, supported by stiff rods. Whatever may be supported by this curved chain, will leave so much less to be sustained by other parts of the structure, and the latter may be proportionally smaller.

To estimate the quantity of iron in this structure, let us assume $ag=450$, and $ah=75$ feet $=ab$. Now, the material in each part, is as the stress multiplied by the length of the part. But the stress is as the weight sustained, multiplied by the length, therefore, the material is as the weight, multiplied by the square of the length.

Making $ab=1$, $hb$ will be equal to $\sqrt{2}$ and $hb^2=2$. But the weight sustained by $hb=\text{W}$. Hence the material in $hb$ may be represented by $hb^2 \text{W}=2 \text{W}$.

Again, $hc^2=ha^2+ac^2=1^2+2^2=5$, and the weight sustained by $hc$, being $\frac{2}{3} \text{W}$, the material will be represented by $\frac{2}{3} \text{W} \times 5=\frac{10}{3} \text{W}$.

In like manner, the material in $hd$, may be represented by $\frac{1}{2} \text{W} \times 10=5 \text{W}$, and the material in $hc$, by $\frac{1}{3} \text{W} 17=\frac{17}{3} \text{W}$.

Adding these amounts together, we have $16 \text{W}$ to represent the material in $hb$, $hc$, $hd$, and $hc$, and $32 \text{W}$ for the same, together with the corresponding chains $ci$, $di$, &c.

Now, the unit in this expression $=75$ feet, and $\text{W}=150,000$ lbs. plus $\frac{1}{6}$ the weight of the structure between piers, which we will assume at $66,000$ lbs., making $\text{W}=216,000$ lbs.

To sustain this weight at $12,000$ lbs. to the square inch, will require $18$ square inches cross section of iron, or about $60$ lbs. to the foot. This multiplied by $75$, gives $4500$ lbs., which substituted for $\text{W}$ in the expression $32 \text{W}$,