In the mean time, the figures in the lower line, show the accumulation of the effects of the different weights upon successive diagonals from left to right. Thus, the figure 6 over the point \( d \), shows that \( dl \) sustains \( 6w'' \), = pressure due at \( i \), from weights \( (w) \) at \( b, c \) and \( d \), when those points only are loaded; in which case, \( dl \) sustains its maximum weight, as before seen.

In like manner, the figures 10 & 15 over \( e \) and \( f \), indicate that \( 10w'' \) and \( 15w'' \), are respectively the maximum weights sustained by \( ek \) and \( fg \), while \( 21w'' \) (= \( 3w \)), equals the maximum weight sustained by \( ij \), (by compression, of course), when the whole truss is loaded.

XLI. Having thus ascertained the greatest weights the several oblique members are liable to sustain (those inclining to the left being obviously exposed to the same stresses as those inclining to the right), we find their maximum stresses by rule 4, \([xvi]\); i. e., multiply the weight by the length, and divide by the vertical reach of the member. Thus, the maximum compression of \( ij \), equals \( 3w \frac{D}{e} = 3w \sqrt{h^2 + v^2} \), and the representative of required material, is \( (\frac{3h^2}{e} + 3v)\) m.

The maximum stress of \( ek \) equals \( 10w'' \frac{D}{e} = 1\frac{3}{4}w \sqrt{h^2 + v^2} \) and its representative for material is \( (1\frac{3}{4}h^2 + 1\frac{3}{4}v)\) m. Or, the lengths and inclinations being the same, we may take the aggregate maximum weights sustained by tension diagonals, reduced to terms of \( w \), multiply by the square of the common length, divide by \( v \), and change \( w \) to \( m \). The ten tension diagonals sustain maximum weights equal to \( w'' \) multiplied by twice the sum of all the figures in the lower line over