panels it does cross. Hence, the horizontal action of each oblique, = \(nx \times \text{the product of the numbers of panels at the right and left respectively, of the lower end of the oblique.}

The compressive force, acting from end to end upon \(al\), then, must be equal to 

\[
x \times (7 + 2 \times 6 + 3 \times 5 + 4^2 + 5 \times 3 + 6 \times 2 + 7,)
= 84nx, = 10 \frac{1}{2} W \times 0.833, = 8.75 W.
\]

Multiplying stress by length, and substituting \(M\); we have \(8.75 \times 6.66 \times M, = 58 \frac{3}{4} M, = \text{material required in } al, \text{ at a given stress per square inch of cross-section; } M \text{ being the amount required for a unit of length, } (ab,) \text{ to sustain the unit of weight, (} W,) \text{ at the same rate of stress.}

Add 7\(M\) for two End Posts, with length equal to 1, and bearing weight equal to 7\(W\); and we obtain 65\(\frac{1}{4} M\), as a total for Thrust material in long pieces, not including 7 intermediate uprights, not properly to be classified with parts above noticed.

The parts above considered, mainly determine the character of the truss as to Economy. Other parts, such as short bolts, nuts, connecting pins, &c., although just as important, are, comparatively, of small amount and cost, except the intermediate uprights, which will be referred to hereafter.