compute the horizontal strain at the extreme point of loading, and also at the next panel-point beyond. The difference between these two strains will be the horizontal component of the diagonal of the panel between the points where the horizontal was computed. This has now to be converted into the direction of the diagonal for its longitudinal strain, from which the vertical effect of compression on the post is readily derived. Since tension forever exists on the verticals from the dead load, the amount of tension of one panel dead load must be deducted from the compression above found for maximum compressive effect that can come on a post. As an example of the application of these principles, assume a bowstring truss, with 6 panels of 15 feet, and 13 feet deep at centre. Also let dead load $w = 5000$ lbs. per panel, and live load $w' = 15{,}000$ lbs. per panel. The lengths of the verticals and diagonals as marked on the diagram:

Maximum horizontal chord strain

$$\frac{\overbrace{(w + w') \times 2\tfrac{1}{2} \text{ panels} \times 45 \text{ ft.}}^{\text{Reaction.}}\ l. - (w + w') \times (1 + 2)\ 15 \text{ ft.}}{13} = 103{,}846 \text{ lbs.}$$

Maximum thrust in last segment $f' g$ of arch $=$

$$\frac{(w+w') \times 2\tfrac{1}{2} \text{ panels} \times 15 \text{ ft.}}{6.7 \text{ ft.}} = \frac{20{,}000 \times 2\tfrac{1}{2} + 15}{6.7} = 111{,}940 \text{ lbs.}$$

Maximum tension on verticals $w + w' = 20{,}000$ lbs.

Constant tension from dead load alone $w = 5{,}000$ lbs.

Maximum tension on $b\ c'$ occurs when variable load is at b alone; reaction left abutment $= \frac{5}{6}\ w' = 12{,}500$.

Horizontal tension at $b = \frac{12{,}500 \times 15}{bb'} = \frac{187{,}500}{7.5} = 25{,}000$ lbs.