

Hence the tension in similar catenaries are directly as their weights.

Therefore when any weight is uniformly distributed on any catenary, an increase or decrease will only produce different tensions on the parts, without altering the figure of the curve.

When a platform or deck is hung (as in the case of a Bridge) to the catenaries by means of the vertical suspending rods, their conditions remain very nearly the same, as if the weight was uniformly distributed on the catenary.

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As an excess of weight upon any part of a catenary will tend to depress that part, it follows necessarily that unless the catenary changes its length, one part cannot sink without raising some other part a corresponding quantity.

Therefore when the centre is depressed the haunches are raised, and when the haunches are depressed that portion opposite to it will be raised, and will gravitate on the centre.