CHAPTER XI.

PRACTICAL METHOD OF PIN PROPORTIONING.

The ordinary method of pin proportioning is to figure the diameters of a few principal pins, and to make the others of the same sizes. Thus, by inspection, can be found which pin near the middle of the bottom chord is subjected to the greatest bending-moment. If there be an even number of panels in the span, it will be the middle pin; but, if there be an odd number, it may be the first or second pin from the middle, according to the number and arrangement of the chord bars. The vertical component of the bending-moment on any one of these pins is so small in comparison with the horizontal component, that it may be neglected. For bridges with an even number of panels,—

Let

\[ T = \text{tension in middle panels of lower chord,} \]

and

\[ w = \text{the average thickness of chord bars in these panels;} \]

then, approximately,

\[ \frac{Tw}{2} = \text{bending-moment on middle pin.} \]

This formula may be applied, but perhaps with less accuracy, to a bridge having an odd number of panels; and, if the chord be properly packed, the error will be upon the side of safety.

With the exception of the chord pins at the shoes and at the first panel points from the ends of the span, all the lower chord pins may have a diameter corresponding to this maximum bending-moment.