A Riveted Plate-chord.

CXVII. May be formed of flat plates as long as may be conveniently managed, connected by splicing plates of a little more than half the thickness of the chord plates, one upon each side, riveted or bolted with such a distribution of rivets, &c., as may not weaken the plates by more than the width of one rivet hole.

The area of rivet section should be at least \( \frac{\frac{1}{2}}{\frac{1}{3}} \) as great as the net section of the chord plate, on each side of the joint; and, \( y_0 \), Fig. 34\( \frac{1}{2} \) denoting the splicing plate, the distance \( cd \), from the joint to the centre of the first rivet hole, should be at least twice the diameter of the rivet (depending somewhat upon the size of rivet and thickness of plate, as well as the soundness of grain in the iron). The succeeding rivets, \( a, e, f, \) &c., should be placed alternately on opposite sides of the centre, so that the oblique distance \( ac (=O) \), may equal the transverse distance \( (=T) \), + the diameter of whole \( (=H) \). Then, representing the longitudinal distance \( bc \), by \( L \), we have \( T+H = O \), and \( (T+H)^2 = O^2, = T^2 + L^2 = T^2 + 2TH + H^2 \); whence \( L = \sqrt{2TH + H^2} \).

If the plates be 6″ wide, and \( T = 3\frac{1}{2}″ \) (which is regarded as in good proportion, the above formula gives \( L = 2\frac{1}{2}″ \) very nearly, for a ¼″ hole. Then, 5″ being allowed for the space \( cc \), and 2″ each for \( cd \) and \( eg \), the splice plates would have a length of 20\( \frac{1}{2}″ \), and \( \frac{7}{8} \) of the whole section of chord plates would be available for tension; since an oblique section through two holes, would quite equal a direct transverse section through one hole.

The amount of rivet section above given is estimated upon the assumption that each rivet must be sheared