

post and the pin hole when the post would be on the point of rupture by compression. Where the ends of the posts are figured hinged, which is a decidedly better construction, the extension plates pass inside the splice plates of the chord, and are attached to the pins. As before, there must be enough rivets to transfer the stress in the posts to the plate.

The thickness of the re-enforcing plates at the lower end of a post is determined by the bearing required, and their length in the manner already described. It is better to place these plates on the inside of the posts; then, if the flanges of the channels be partially cut away, an extra plate (at least three-eighths of an inch thick) can be placed on the outside of each channel. The reason for cutting away the bottoms of the post channels is merely to pack the chord more closely, and thus reduce the bending-moments on the pins. But, if the method of pin proportioning given in Chapter XI. be adopted, the necessity for cutting away the channels, to any extent, vanishes; for at the middle of the span the web stresses are so small, that their moments are neglected, and the pins at the feet of the other posts have an excess of strength.

In high double intersection truss bridges with long panels, the diagonals become so long, that it is convenient to halve them, and connect the halves by pins. It is then advisable to let these pins pass through the webs of the post channels where the diagonals cross, for the latter then tend to stiffen the posts. If intermediate struts also be used at the middle of the trusses, the posts can be figured for half length, with both ends hinged. On account of the stretch of the main diagonal, there would be a tendency to deflect the post. If the diagonals were forty-two feet long, the stretch of the upper half of them would be about one-eighth of an inch; so that, to avoid this objection, it will be necessary to elongate the pin hole that amount on the lower side, in the direction of the main diagonal. The pin holes should, of course, be well re-enforced in order to compensate for the material cut from the channels. The stretch of the counters being less than that of the main diagonals, and the posts crossed by the heavy ones generally having an excess of strength, it is not necessary to elongate the pin holes in the direction of the length of the counters.