inside of the chord channels, all abutting surfaces being planed to fit exactly; so that, when the pin is driven into place, the whole joint will be as rigid as if it were riveted. Of course this detail demands neat workmanship, and is consequently somewhat expensive; but the satisfactory result attained more than counterbalances the extra cost of the shop-work, and there is no necessity for figuring on a hinged end at the hip when proportioning the batter brace and the end panel of the top chord.

A good method of attaching the upper lateral struts to the chords is the following, which is illustrated on Plates II., IV., and VI. Let the web of the upper channel lie upon the cover-plate of the chord, extending to its outer edge, and be riveted thereto; and let the under face of the lower channel, its flanges being turned downward, lie in the same horizontal plane as the faces of the lower flanges of the top chord channels. The length of the lower channel of the lateral strut should be a couple of inches shorter than the clear roadway of the bridge. The connection is made by a plate in the form of the letter T, the head being riveted to the lower flanges of the inner chord channels, and the stem passing between the flanges of the lower channel of the lateral strut, to the web of which it is to be riveted. The thickness of the T-plate should be five-eighths of an inch, and the re-entrant angles should be rounded off with a radius of an inch and a half or two inches. The width of the stem should be made as great as the distance between the flanges of the lateral strut will permit, and that of the head equal to the width of the flanges of the chord channels.

The number of rivets for either stem or head must be calculated for bending and bearing resistances corresponding to the greatest stress that could ever come upon the channel, which stress is to be calculated by multiplying the area of the channel by the intensity found in Table XI.

A good connection for the intermediate struts to the posts is by means of two bent plates at each end of the strut (vide Plates IV. and VI.). One leg of each plate is riveted to the web of the inner channel of the post, and the other to the web of the I-beam, which is placed horizontally. The vibration rods