Bridges of this length of span are, moreover, often built with counter braces omitted, for common road purposes. But such practice is defective, unless extra depth of section be given to the lower chord, so that its stiffness may transfer a portion of weight over the quadrangular middle panel; and in no case is it advisable to dispense with counter braces in a rail road bridge of three panels.

Beams may be suspended by divergent bolts as in Fig. 61, and bolted to the chord; while horizontal \( \times \) ties or braces, as may be preferred, in each panel will prevent lateral swaying of the structure.

The above is probably the simplest and best plan of wooden truss for bridges of 30 to 35 feet span.

Four and Six Panel Trusses.

CLX. The same general arrangement, with the same kind of connections, in trusses of 4 or 6 panels, according to length of span, may be used with good effect for common road purposes, in any length up to 70 or 80 feet. In such cases, each panel should have one main brace, and counter braces may be entirely omitted; as the partial movable load is seldom so great as to neutralize the action of weight of structure upon the main braces.

In the 6 panel truss, the movable must exceed the permanent panel load upon the two beams next either end, with no movable load upon the other beams, in order to neutralize the constant tendency to action upon the central pair of main braces. This is obvious from the fact that the greatest tendency to tension action upon the latter, is \( 3w' \), = \( \frac{3}{2}w \), while the permanent load gives a constant opposite tendency, equal to \( \frac{1}{2}w' \). Should such cases occur, the transverse stiffness of