ARCH TRUSS BRIDGES.

and a swivel or turn buckle adjustment near one end, a pair between each two consecutive beams, to which they are bolted near the uprights, are required to prevent a lateral swinging or swaying of the bridge; whence these members are usually called sway braces, or sway rods. In the end panels the sway rods are attached to the feet of the arch.

Upon the cross-beams, longitudinal joists are placed to support the floor plank, a thing so simple, and so generally understood as to require no further description or illustration in this place. More or less casings and finishings of wood work outside of the roadway, are usually added, according to circumstances, or the taste of the builder.

CV. The rise of the arch above the chord, will admit of a considerable degree of variation. A pitch of 24 to 26 degrees for the end arch pieces, it will seldom be advisable to exceed in either direction. That pitch divided by the whole number of joints in the arch (6, for a seven panel truss), gives the angle of deflection at the joint, equal, of course, to twice the angle of bevel for ends of arch pieces.

This, however, does not produce an arch in equilibrio under a uniform load, which, as we have seen, [xxvii and lxx] requires a parabolic curve, while equal deflections produce a curve between the parabola and the circular arc; not departing from the former, however, widely enough to be of material moment for ordinary spans. The effect is only the throwing of a trifle more action upon certain diagonals; for which the convenience of uniform bevels, is, perhaps, an adequate offset.