structure will be secured laterally, by \( \times \) ties, or sway rods between beams, and between king braces at the ends; no \( \times \) bracing being required between lower chords.

Low trusses constructed in the manner above described, have been used satisfactorily for supporting the outside of wide side walks; answering the purposes of a protection railing at the same time. For this purpose, the uprights are only 5 or 6 feet long, so as to bring the upper chord about 4 feet above the flooring. The first instance of this kind was in the case of the canal bridge on Genesee street in Utica, built 18 or 20 years ago, and repeatedly copied since.

CXX. Bridges from 80 to 100 feet for common roads may be constructed with single canceled trusses, 13 to 14 feet high; in which case the panels will require to be wide (horizontally) in order to avoid an inclination of diagonals too steep for good economy.

But for railroad purposes, the trusses require a depth of about 20 feet to afford sufficient head room under the top connections, unless the beams be suspended below the bottom chords. Hence, the

\textit{Double Cancelated Truss}

should be adopted for "through bridges" of spans exceeding 70 or 80 feet.

Figures 18 and 20 exhibit in outline, the general character of the double cancelated trapezoidal truss bridge; and, it is only necessary in this place, to describe feasible modes of forming and connecting the various members; which may be done essentially as described in the preceding section, with such modifications as follow.