ARCH TRUSS BRIDGES.

XCIX. The general form in outline of the Arch Truss, may be seen in Figs. 8 and 11.

The forms of the different members, and the modes of connecting them to form the complete structure, are many, and a minute description of each possible variety, in this respect, even if such a thing can be regarded as practicable, will not be undertaken on this occasion.

The arch may be of cast or wrought iron in various forms of section. The following form of cast iron arch has been extensively used in the state of New York, with uniform success and satisfaction. The arch is composed of cast iron sections, equal in number to the number of panels in the truss; an odd number being deemed preferable. In Fig. 27, $a o n m$ presents a top view of the arch, and $D$, a top view of the chord, from end to centre; and $A$ and $B$, enlarged cross-sections at $p$ and $q$, adjacent to the cross-bars to be described below, and which also appear in the figure. Each piece consists of two side portions of an $\tilde{m}$ formed section, connected at the ends, and at 2 or 3 intermediate points, by cross-bars of a $\uparrow$ formed section for the intermediates, and at the ends, with sections as seen at $C$, where a view of the arch connection is shown, as it would appear if cut vertically and longitudinally through the centre, and the near half removed.

The width of the side plates of arch castings (from the top), should be about $\frac{3}{10}$ of the length of pieces, with an average thickness of from $\frac{1}{10}$ to $\frac{1}{5}$ of the width. The top plate, about the same thickness (or a trifle less, to prevent a tendency in the piece to become hollow.