We feel confident that were the designer to make a careful and correct estimate of the strains developed in the bridge by its own weight, he would essentially modify the plan.

II. The design submitted by Mr. G. A. Karwiese for the great spans consists of a hinged arch, of which the lower member is a parabola and the upper member is slightly cambered. The upper and lower members are composed of wrought-iron pipes, and the general arrangement of parts is shown on plate II.

Were the location over a deep chasm with natural rocky abutments high above the stream, "the main features of this design would not be inapplicable, and it might be perfected so as to be economical. The hinging of the parabolic arch at the crown and at the abutment would eliminate the strains from changes of temperature, while the upper member would impart rigidity. The necessity for building abutments up from the bottom, at the proposed location, would, however, prove somewhat costly, while the limitation of the head room by the haunches of the arch would materially obstruct the free navigation of the river, and probably contravene the terms of the charter.

The side elevation of the longest span (which the designer proposes to make 760 feet in the clear), while showing a height of 135 feet at the apex, gives 130 feet of head-room for a length of but 230 feet in the centre, and of only 97 feet at a distance of 80 feet from the abutments, at which points sailing vessels must occasionally pass.

The method proposed for placing this span in position—by raising it along the margin of the river, one end resting on a pivot at the abutment, and the other on floats, and of afterwards swinging it across, thus describing a quarter of a circle, with the abutment as a pivot, strikes us as extra-hazardous. It would not only involve temporary obstruction to the navigation, but also great risk of disaster and wreck to the entire structure.

These objections appear to us so serious as to warrant putting this design aside, as not fulfilling the conditions of the charter and of the specifications.

III. The design presented by Mr. W. J. Morris, for the Cincinnati Bridge Company, consists, for the great spans, of a