The isometrical truss mentioned in this connection, is precisely the same as has been noticed in Fig. 6, and the marked superiority of the Isometrical system over this arrangement has, we trust, been fully established. From our previous discussion of the provisions for compensation and adjustment in this system, we feel compelled to assume the responsibility of placing it absolutely first in every respect except, perhaps, its adaptability to all spans and positions; and in this particular an equality is claimed with the Fink.

The original application of the Isometrical principle to iron bridge construction, is believed to have been made on the Philadelphia and Reading Railroad, in the year 1863. A series of experimental trusses of 60 feet clear span were constructed by the patentee in the shops of the company at Pottstown, and afterwards put up at different points on the line, where they were subjected to the most severe trials capable of being applied in practice, and the results were in all cases highly satisfactory. These same bridges, it may be remarked, are now carrying the heavy trade of this well-known railroad without the slightest indication of weakness or the expenditure of a dollar for adjustment. It was not, however, until the summer of 1865 that any attempt was made to apply these principles to wooden bridge construction, but the results then obtained, although through the medium of experiments upon models, were full and conclusive. A brief description of these experiments may not be uninteresting to our readers. The first model was constructed in the Philadelphia and Reading Railroad Company's shops, at Pottstown, on the general design represented in Fig. 7. It consisted of a single truss of 25 feet span, having its parts proportioned upon a scale of \( \frac{1}{8} \) the size of a bridge 200 feet span, but no provision was made for a system of counterbracing. After placing the model firmly on its supports, and confining the upper chord so as to prevent buckle, a uniform load of castings was applied to the lower chord, of 3500 pounds, producing a deflection of 1\( \frac{1}{2} \) inches; but in order to test the effect of a want of counterbracing, the castings from one-half the