as represented by the dotted diagonals; it is perfectly clear that the first system will be relieved of one-half the load which it would otherwise be called upon to sustain, and that this amount will be taken up and carried to the abutments by the second system; at the same time all the practical considerations involved in the vertical members have been done away with, and no more sectional area, and consequent material, is required in the diagonals than would be called for in the single full system (Fig. 6), supposing it practically capable of being adapted to a moving load without the use of intermediate supports. Hence, since all members which do not assist in preserving the general equilibrium have been removed, and the remaining ones subjected to an equal share of duty imposed in very nearly the proper theoretical direction, it may with safety be assumed that a web system involving a double set of triangles, substantially as indicated in Fig. 7, possesses both theoretical and practical advantages over any other now in use, commending it to general introduction.

Such are the main features of what has been called the Isometrical Truss. The principles upon which it is constructed being general, it is equally applicable either in wood or iron; but as the requirements of railroad enterprise in this country demand more than any other the introduction of a cheap and substantial wooden railroad bridge, we shall devote the greater portion of our remaining space to the application of the isometrical principle to wooden bridge construction.

Within the limits of a mere pamphlet, it would be quite impossible to attempt anything like an extended examination of the different kinds of bridges in use throughout the country. Suffice it to say, that although there are a great variety, and many of them fulfilling all the requirements of the original design, yet practically there are but a very few systems acknowledged to combine sufficient advantages to insure their continued adoption; and it is with these we propose to occupy our readers' attention, by way of instituting a comparison between their internal economy and that of the Isometrical Truss.