RIVET-WORK BRIDGES.

Tension diagonals will usually require from 25 to 33 per cent of extra section to make up the loss in rivet holes. In thrust diagonals, no allowance need generally be made for rivet holes, as rivets properly distributed, will not impair the efficiency of the member in withstanding compression.

With regard to the relative merits of this kind of lower chord, it requires, in the proportions above assumed, namely, 8" width of plates and 1" diameter of the smaller rivets, about 14 per cent of extra section on account of rivet holes, through the whole length. For splice plates and rivets, at least an equal amount should be allowed, making 28 per cent for waste material, over and above the net available length and cross-section. The corresponding waste in the link chord, and in the eye-plate chord [cxiv], can scarcely exceed 10 per cent, when the connections are made with wrought iron pins.

Hence, the advantage as to economy of material, seems decidedly in favor of the latter plans; and the cost of manufacture can hardly be estimated in favor of the former. If the riveted chord, then, have any claim to favor and preference, it is mostly owing to the fact, that being manufactured cold, it escapes the deteriorating effects frequently resulting to iron in the process of forging and welding, and the risk of flaws, and imperfect cohesion of the welded surfaces.

How far this consideration should be regarded as an offset, or an overbalance to 15 or 20 per cent, of material lost in rivet holes and splices, further experience and observation alone can probably determine.