defect would still remain; there would not be sufficient security against warping, although much more than in the ordinary method of construction.

Fig. 89.

The double lattice, as it is called, consists of three sets of chords, above and below, as represented in the cross-section, between which two sets of ties and braces are introduced. In comparing this truss with the single lattice, it is evident that it must possess greater power to resist warping, for the timbers \( nn \) being separated by an interval, will act on the principle of a hollow cylinder, which is much stiffer with a given quantity of material than a solid one. This however is its only advantage, in other respects we think it one of the worst that could be adopted. Whilst the weight of timber from the ties and braces has been doubled, the cross-section of the chords has been only increased one-half. A great load of unnecessary timber is placed in the centre, where any weight acts with the greatest leverage, and produces the greatest strain. It is probable that this truss, as usually constructed, possesses less absolute strength with a given quantity of material than any other in common use.

The greatest improvement that could be made to this truss, would be to introduce two arch-braces and a straining-beam, and the opening between the trusses \( nn \) would be admirably adapted for the reception of such a system.

In lattice bridges a second set of chords is sometimes, perhaps it may be said generally, placed between the first, crossing the second intersections; but as these chords are nearer the neutral axis, they of course act less efficiently than those which are at the top and bottom.