IMPROVED LATTICE.

The following plan of a bridge truss was designed by the author in the year 1840. With even greater simplicity and economy than the ordinary lattice, it appears to be entirely free from its defects; and possessing many of the essential requisites of a good bridge, with a capability of extension to spans of considerable length, it seems to be unusually well adapted to the wants of a community with whom economy is an object.

A well arranged and proportioned structure should possess the following requisites:

1. The cross-section of the chords should be greatest at centre, and least at the ends.

2. The resisting area of the ties and braces should be greatest at the abutments.

3. A system either of counter-braces or of diagonal ties must be introduced, to secure the structure against the effects of variable loads.

4. The timbers of the side trusses should be of such a size, or arranged in such a manner, as to guard against all liability to warp.

5. It is desirable, although not always necessary or practicable, that the pressures should be divided amongst several timbers, so that any defective piece can be readily removed and its place supplied by another, without rendering it necessary to support the bridge during the progress of the repair.

(152)