tions. In a bridge very heavy in proportion to the moving load, this excess is soon lost either side of the truss centre, when the counters can of course be left out. Ordinarily they are continued a short distance beyond theoretical requirements, in order to diminish vibration, which they materially assist in preventing when screwed up tightly. The usual forms of truss bridges are illustrated by the succeeding figures, on each of which is represented, by means of lines of varying width, not only the parts strained the greatest, but also the kind of strain. Tension is shown in fine lines, and compression in full black ones. The weights producing strain are supposed to be located immediately at the panel-points, the whole materially aiding the mind in forming a very fair idea of how trusses really do act, when coupled with the descriptions and definitions just given.

Figs. 3 and 4 represent plain girders for short spans, in which the flange and web parts are noted. Such gir-

![Image of a solid rolled beam and a compound riveted girder]

ders are often used of solid section, and are called rolled beams, being finished ready for use direct from the rolling-mills. They are made of varying sizes and weights, from the four-inch beam, weighing 30 lbs. per yard, to the