A truss of this kind with a parabolic arch, the section at every point being proportional to the strain, and protected from the effects of partial loads by the iron diagonal ties $m \ n \ m' \ n'$, &c., is absolutely the lightest that we can conceive for a wooden bridge, fulfils every condition of a perfect structure, and consequently admits of the greatest possible extension of the span. If a horizontal tie is desired, the posts must be extended.

**Roadway.**

The roadway of a bridge admits of little variation. It is generally constructed by laying beams across the trusses, upon which are placed the longitudinal pieces which carry the planking. A very important part of the roadway consists in the bracing, which is necessary to prevent lateral flexure. The usual arrangement of braces is shown in the annexed figure.

**Fig. 70.**

$A \ B$ and $C \ D$ are the trusses, $n \ n'$ the girders, and the diagonal timbers are braces.

The following figure represents another plan of horizontal

**Fig. 71.**