parts, resting upon flanges cast upon the upright about 3" above the lower end; the beam timbers being hollowed out upon the insides, so as to embrace the upright, in part, leaving a space of 2 or 3 inches between, and secured in place by bolts and separating blocks.

The mode of inserting iron beams by means of openings in the uprights, has already been explained. Lateral \( \times \) ties, or sway-rod may be inserted by bolting to the beams (Figs. 31 and 33), attaching to the inner end of connecting blocks, as at \( d \), Fig. 35, or by passing through the block between the links and the post and beam seat, in the manner referred to two pages back.

Diagonal ties of wrought iron, and transverse struts of wrought or cast iron, are also required between the upper chords, to keep them in line. Cast iron cross-struts may have the web and flange form of section, with shallow sockets at the ends, to admit the connecting bolts at the upper chord to enter, after passing through eyes upon the upper sway-rods and nuts to hold them in place. These sway-rods require turn-buckles for adjustment, when they extend across one panel only. But if the bridge be wide between trusses, the rod may extend only from the end of one cross-strut to the centre of the next, where it may pass through the strut, and receive a nut on the end. Thus, four rods meeting at the centre of the strut, each having its appropriate hole to pass through, all as near to one another as practicable, with sufficient space for nuts to turn (see \( a \) and \( e \), Fig. 39), it forms a convenient arrangement for adjusting the rods to a proper tension, at the same time affording lateral steadiness to the cross-strut.

The end-most struts, however, should have no rods connecting with them in the centre, as they can have