cross bearer is boxed 4 or 5 inches deep, to receive the verticals *d*.

The diagonals *f.f*, $3\frac{1}{2} \times 7$ inches, are locked or tenoned together at the upper end, and fitted into a half inch boxing on the inside of the upper stringer *b*. In the center is a mortice 3×7 inches for the piece *e* to pass through. The lower end is reduced to 3 inches wide between the pieces *d*, and 4 inches at the end, having a head, or reversed shoulder fitting a triangular boxing inside of *d*, shown by dotted lines.

The diagonals *e.e*, are secured each by 2 bolts of $1\frac{1}{2}$ inches diameter, and a few spikes at the upper end; and at the lower end, they are halved and locked together, with a piece of 2 inch plank, $2\frac{1}{2}$ feet long, locked, bolted, and spiked onto each, and extending across the other to the end. These short pieces, being reduced to $1\frac{1}{2}$ inches thick, except for 6 inches at the upper end, which forms the locking, they just fill the 6 inch space between the stringer pieces. Two bolts of $1\frac{1}{4}$ inch iron, through stringer and diagonals, with a few spike, complete the arrangement at this point.

To secure the vertical position of the truss, a brace and tie runs up from a point in each cross beam, about $2\frac{1}{2}$ feet from the centre of the truss, to or near the top stringer, being secured at each end so as to act by either tension or thrust, with a force of some 2000 lbs. each. Perhaps the best arrangement for this purpose is, to use a 3 inch square, or 3×4 scantling for the brace, with a $\frac{5}{8}$ iron rod running beside it for the tension. These are not shewn in Fig. 34.

If the lower stringers can not be obtained of the whole length, they may be spliced by a two-lock splice between cross beams, with a piece of 2 inch plank about 6 feet long, which will extend 16 inches beyond the lap each way, well spiked on to the inside. Six inch pressed spike, ($\frac{1}{2}$ inch iron,) the points drawn about an inch for