clenching, with a portion of five inch spike, may be used to advantage in this splice.

But the splicing at best, adds considerably to the expense, and it is better, when practicable, to obtain stringers of the full length, even at a considerable extra cost per foot.

The amount of materials for a 40 feet railroad bridge on this plan, is estimated at 306 cubic feet of timber, and 400 lbs. of iron.

**Plan of a 60 Feet Rail Road Bridge,**

*Applicable from 40 to 72 feet with advantage.*

Scale for Length of Pieces, 1 to 100; other Dimensions, 1 to 30.

LXIX. Figure 35, Pl. 9, shews a side view from one end past the centre.

The lower stringer $a$, is composed, as in the preceding plan, of two portions, each 9 inches deep by 5 wide, with a space of 11 inches between, from the end to the point $a$, about three feet from the second cross-beam from the end. Thence, a 2½ inch plank extending to within the same distance of the opposite end, is added to the inside of each portion, reducing the width of the space to six inches. These plank are well spiked at the ends, say with 3 spike, $\frac{5}{8}$ square by 7 inches long, at each end of each plank, two being placed six inches apart, and 3 or 3½ from the end, and the other in the centre, and 7 or 8 inches from the end. It would be better, perhaps, that one or two of these, should be $\frac{3}{4}$ or $\frac{3}{4}$ screw bolts.

The $5 \times 9$ part of the stringer may be spliced by the double lock splice, centrally opposite the second bearing point, or any where between the second and fourth. If spliced at the bearing point, the transverse bolts which secure the diagonals, will strengthen the splice at the same time. The splice, of course, should be farther assisted by spike and small bolts, and these should in general, be at