240, the total length in feet of the two top chords, gives 432 pounds as the apparent saving of iron in the chords by using ten-inch channels: to this must be added the saving in the batter braces, which could be calculated in the same way. It is, however, unnecessary to make this calculation; for we can see, that, all things considered, it is better to adopt the ten-inch channels.

The sections and weights of the top chord panels are now to be entered on the diagram.

It is about time to look to the bottom chord packing, and see if there be sufficient room inside the posts for the diagonals and beam hangers; but we must first proportion the diagonals as marked on the diagram by means of the table on pp. 94, 95, of Carnegie’s “Pocket-Companion,” and the hangers by referring to Table XXII, which shows that $\frac{3}{8}$ square bars will be required, square bars being adopted because there will be very little room to spare inside the posts. Referring to Table XXVIII, we find the width of flange for a 10' 24.15# channel to be 2.63 inches. Doubling this, and subtracting the product from the width of plate, leaves 7.24 inches for the width between channels. The thickness of the inner splice plate will be about seven-sixteenths of an inch; doubling which, adding an eighth of an inch for play, and subtracting the sum from 7.24, will leave 6.24 as the distance between inner faces of post channels. The thickness of each inner re-enforcing plate at the foot of a post cannot exceed half an inch, which would leave 5.24 inches for packing the diagonals and hangers. For the second and fourth panel points this will be sufficient; but at the third there would be room enough to let the counters in, and not enough to permit of turning up the sleeve nuts. We can either substitute a single counter, or widen the chord plate. The former will be preferable, as the counter stresses do not affect the sizes of the bottom chord pins, and the central pin of the upper chord should have an excess of strength in any case.

From Table IX. we find that the size of the counter required will be $1\frac{7}{16}$" square.

Next let us proportion the batter brace. The ratio of length to least diameter is about 37½, for which Table X. gives 2.639