through the upright, from members of the other classes, meeting at the point p.

The material required for all the obliques, then, \( (ab\) being = 1, and \( bc = h)\), is \( 8 \times \frac{1}{2} (h^2 + 1) + 4 \times 1 (4h^2 + 1) + 2 \times 2 (16h^2 + 1) M \), being the number of pieces in each class multiplied by co-efficients of \( W \) in weights sustained, and by squares of length respectively, and the sum of products multiplied by \( M \).

Substituting in the above expression the value of \( h^2 \), (0.694), and, reducing and adding terms, we derive material in obliques = 70.296 \( M \).

**Fig. 48.**

**Finck Truss.**

The compression upon the chord \( al \), is equal to the horizontal action of one member of each class of obliques, communicated at each end; that is, equal to \( (\frac{1}{2} h + 2h + 8h) W = 10\frac{1}{2} h W \); and, multiplying by length ( = 6.66), and substituting 0.833 for \( h \), and \( M \) for \( W \), we have \( (10.5 \times 0.833 \times 6.66) M = 58.\frac{1}{2} M \), to represent the material required in \( al \); — the same as in case of Fig. 47.

The uprights of the Finck truss obviously sustain 12\( W \), namely, 3\( \frac{1}{2} \) at each end, 3 in the middle, and 1 at each of the quarterings, \( r \) and \( n \). But, in comparing this with the Bollman truss, it seems fair to offset 6 uprights, not including the end and centre ones, in the Finck, against 7 in the Bollman truss not estimated; thus leaving 10\( M \) for uprights in the former, making...