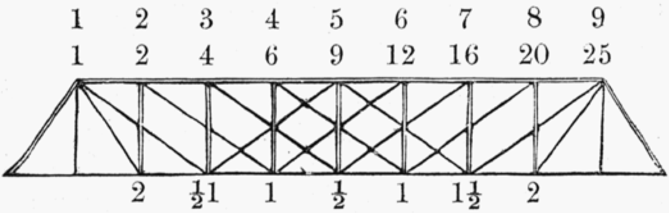
The truss has vertical posts, and tension diagonals, and is represented in Fig. 46, below.

Now, using w & w' to denote the same quantities as in the last preceding case, and pursuing the method explained with reference to Fig's. 38 & 39, we have the maximum load for 3/5, $= .4w - \frac{1}{2}w'$, $= .23w$. For 4/6, we have $.6w$, without increase or diminution on account of structure; while, for the 3 next diagonals on the right, we have successively, $.9w + \frac{1}{2}w'$, $1.2w + w'$, & $1.6w + 1\frac{1}{2}w'$, equal

Fig.46,—Whipple Truss.



altogether, to $3.7w + 3w'$, $= 4.7w$; making for the 5 pieces, $5.53w$. This being doubled, & multiplied by square of length, (2.775,) and w changed to m, gives, material for 10 long diagonals $= 30.69$m.

The two steep diagonals together, sustain $4(w + w')$, $= 5\frac{1}{3}w$, which, multiplied by square of length, (1.44,) produces, material $= 7.68$m; while the two tension uprights manifestly require $2\frac{2}{3}$m. We have consequently, material for the system of tension obliques and verticals $= 41.03$m.

The End Brace obviously sustains $4\frac{1}{2}(w + w')$, &