Trapezoidal Truss.

ob and jg, and the lower chord, to act by tension; and the upper chord, or boom, the king braces, and the four intermediate verticals, to act by thrust, or compression — if a weight (w) be applied at b, it will obviously cause a downward action equal to w'' at i, and one equal to 6w'' at a.

Fig. 12.

Now, from what has already been seen, in the discussion in relation to Fig. 10, the weight acting at i, can only do so by acting successively, or simultaneously, upon bn, and each diagonal parallel with bn on the right, by tension, and upon each compression upright and the king brace ij, by thrust; causing upon each of these 10 members, a stress equal to w'' upon verticals, and equal to w'' \frac{D}{p} upon obliques; p representing the length of obliques, or diagonals.

A weight (w) at c, in like manner, causes a pressure of 2w'' at i, through cm, and other diagonals inclining to the right, on the right hand of c. Also, a pressure of 5w'' at a. But co being the only member that can transfer weight from c to the left, and, co and bn being antagonistic — stress upon the one tending to relax the other, the result must be, that both can not act at the same time, from the effects of weight at b and c, and only that one can act, to which the greater weight is applied; and that, only with the excess of weight acting upon it, over what is acting, or tending to act upon the other. Now, as the load at c, tends to throw