Let A B. Fig. 43, be a known vertical effect of a force,

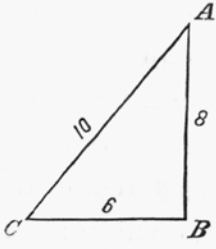

FIG. 43.

and let the geometrical relations of the lines of the triangle be also known. Then the longitudinal strain in A C will exceed the vertical strain in A B by the number of times A B is contained in A C. For example, assume a right-angled triangle, the relations of whose sides are 6, 8, and 10, and suppose the effect of force on A B has been to produce a strain of $w$ lbs., then the longitudinal strain in A C is $w$ lbs. multiplied by $\frac{10}{8}$, or $1\frac{1}{4}$ times the vertical strain. The strain on C B will be similarly $\frac{6}{8}$ times $w$, or $\frac{3}{4}$ the vertical strain. For a wonderfully clear and elaborate discussion of force, strains, etc., as well as upon the subject of trusses and strength of materials, freed from all technicalities, the learner is referred to Mr. Trautwine's "Engineer's Pocket-Book," a work that should be the corner-stone of every engineer's library.

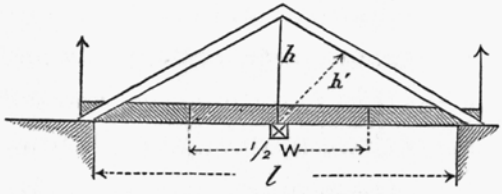

FIG. 44. (See page 35.)

THE KING POST TRUSS.—The extreme effect on all parts of this form of truss occurs when loaded with the combined live and dead loads. In the construction shown in the figure, one half the whole load rests upon the cross-beam upheld by the kingbolt, the other hall