Whipple truss is developed, as in the figure representing the diagram of a through-bridge having seven panels.

Let l = span; n = number panels; h = height of truss; w dead load at each panel-point; w' = variable load on one panel.

1*st. Chord Strains.*—Maximum strain in chords occurs when all panels are loaded with dead and live loads, in which case reaction of either abutment is $\frac{(w + w')(n - 1)}{2}$, or three panel loads $= 3(w + w')$. For first panel, horizontal strain will be (moments around d as a fulcrum) $3(w + w') \times \frac{l}{n} \div h$, or reaction multiplied by lever of one panel-length, divided by depth of truss. For third panel bc, the strain will be (moments around b) $\left(3(w + w') \times \frac{2l}{n} - (w + w') \times \frac{l}{n}\right) \div h$. In this expression it will be noticed that one panel load multiplied by its lever of one panel is *subtracted* from the moment of the reaction. This is because the weight at a operates downward or contrary to the reaction of the abutment, as shown by dotted lines, and reduces correspondingly the effect of abutment reaction. On the middle panel cg, the horizontal strain will be $\left(3(w + w') \times \frac{3l}{n} - (w + w' \frac{2l}{n}) - (w + w') \frac{l}{n}\right) \div h$; or, in other words, subtract from the moment of the reaction—operating in one direction—the moments of the panel loads between fulcrum and abutment, and then divide by the depth for the strain. The same process must be continued for any number of panels up to the centre of the truss where the strains are a maximum, after which they decrease to the other abutment. While the chord strains are the