GENERAL SPECIFICATIONS FOR RAILWAY BRIDGES.

THE moving load for each track shall consist of two consolidation locomotives, each with weights distributed according to the following diagram, followed by a train weighing 3000 pounds per lineal foot. In the case of double-track bridges, this moving load shall be taken as moving in either direction on either track.

The lateral bracing between the chords which do not carry the moving load shall be designed to resist a wind pressure of 150 pounds per lineal foot of span.

The lateral bracing between the chords which carry the moving load shall be designed to resist a wind load of 450 pounds per lineal foot of span, 500 of which shall be treated as a moving load.

In all viaducts and trestle towers the wind load shall be taken as follows:

On the unloaded structure, 50 pounds per square foot of surface projected on the vertical plane through its axis.

On the loaded structure, 30 pounds per square foot of the same surface, in addition to an equal amount per square foot of train surface; the latter to be treated as a moving load.

In all cases the projected surface of two trusses and two sides of towers is to be taken as the surface of action of the wind. The overturning effect of the latter on both trusses and train shall be considered.

The weight of ties, guard timbers, rails, spikes, etc., shall be taken at 400 pounds per lineal foot.

The greatest working stresses in all tensile members of railway bridges shall be taken as follows:

- **In counter-web members**: 8,000 pounds per square inch.
- **In long verticais**: 8,600
- **In main web members (eye-bars)**: 10,000
- **In suspension loops**: 7,000

In tension members of lateral and transverse bracing:
- (including 10,000 pounds for initial tension) 15,000 pounds per square inch.

- **In counter-ropes and long verticais of lattice-girders (not section)**: 7,000
- **In lower chords and main tension members of lattice-girders (not section)**: 8,000
- **In bottom flange of plate-girders (not section)**: 8,000
- **In bottom flange of rolled beams**: 8,000

The greatest working stresses in compression members shall be the following, in which \( P \) is in pounds per square inch:

- **Flat Ends**
  - **Phoenix Column**: \( P = \frac{8400}{\rho^2} \)
  - **Latticed, or Common Column**: \( P = \frac{7800}{\rho^2} \)
  - **Angle-Iron Struts**: \( P = \frac{7800}{\rho^2} \)

- **Pin Ends**
  - \( P = \frac{8400}{\rho^2} \)
  - \( P = \frac{7800}{\rho^2} \)
  - \( P = \frac{7800}{\rho^2} \)
  - \( P = \frac{7800}{\rho^2} \)

\( l \) is the length of column, and \( r \) the radius of gyration of section in direction of failure; both are to be taken in feet, or both in inches.

The formula for pin-end angle-struts is to be used only when the length exceeds 120 radii of gyration; below that value, the formula for flat ends is to be used in all cases.

In the compression flange of plate girders and rolled beams, the working stress shall not exceed 8000 pounds per square inch of gross section.

If the web-plate or plates in the upper chord of latticed girders are not both supported by angles and latticed, their working stresses shall be determined by the formula for angle-struts; if, on the other hand, they are so supported, the formula for common columns shall be used, the gross section being taken in both cases. In all cases the length, \( l \), shall be taken either between points of attachment of lateral bracing, or between panel points, as may make \( l \div r \) the greatest possible.

If the upper chord of a deck structure supports the ties (or its own weight) as a