Coning of Wheels Railway Engineering Notes

Coning of Wheel

The rim or flanges of the wheels are never made flat but they are in the shape of a cone with a slope of about 1 to 20. This is known as coning of wheels. The coning of wheels is manly done to maintain the vehicle in the central position with respect to the track. When the vehicle is moving on leveled track then the flanges of wheels have equal circumference.

But when the vehicle is moving along a curved path then in this case the outer wheel has to cover a greater distance then that of inner wheel. Also as the vehicle has a tendency to move sideways towards the outer rail, the circumferences of the flanges of the inner wheel and this will help the outer wheel to cover a longer distance than the inner wheel. In this ways smooth riding is produced by means of coning of wheels.

Coning Wheels Disadvantages

Coning wheels has the following disadvantages:

1. In order to minimize the above below disadvantages the tilting of rails is done. i.e. the rails are not laid flat but tilted inwards by using inclined base plates sloped at 1 in 20 which is also the slope of coned surface of wheels.
2. The pressure of the horizontal component near the inner edge of the rail has a tendency to wear the rail quickly.
3. The horizontal components tend to turn the rail outwardly and hence the gauge is widened sometimes.
4. If no base plates are provided, sleepers under the outer edge of the rails are damaged.
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Advantages of Tilting of Rails

1. It maintains the gauge properly.
2. The wear at the head of rail is uniform.
3. It increases the life of sleepers and the rails.