FLAT FOOTED RAIL

Flat-Footed Rails (Vignoles Rails)

Flat-footed rails, also known as **Vignoles rails**, are characterized by having their foot rolled to a flat profile. This type of rail was introduced by Charles Vignoles in 1836. Initially, it was anticipated that flat-footed rails could be directly fixed to wooden sleepers, eliminating the need for chairs and keys required with traditional B.H. rails. However, it was later discovered that heavy train loads caused the foot of the rail to sink into the wooden sleepers, leading to loose spikes.

To address this issue, steel bearing plates were introduced between the flat-footed rails and the wooden sleepers.

Merits of Flat-Footed Rails:

- **Increased Strength and Stiffness:** Flat-footed rails offer enhanced strength and rigidity compared to other rail types.
- **Elimination of Chairs:** No need for chairs to hold the rails in position simplifies track construction.
- **Fewer Fastenings Required:** A reduced number of fastenings are needed to secure the rails, streamlining the installation process.
- **Lower Maintenance Costs:** Tracks constructed with flat-footed rails generally incur lower maintenance costs.

Demerits of Flat-Footed Rails:

- **Frequent Loosening of Fittings:** The fittings tend to loosen more often, which can affect track stability.
- **Difficulty in Removal and Renewal:** The rails are not easily removed, making track renewal challenging.
- **Manufacturing Challenges:** Producing points and crossings with flat-footed rails can be difficult due to their design.

Overall, while flat-footed rails provide significant benefits in terms of strength and cost-efficiency, they present certain challenges that must be managed to ensure effective rail track performance.