



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF CIVIL ENGINEERING **&** **CIVIL ENGINEERING PLANNING**

19CET 205 –HIGHWAY AND RAILWAY ENGINEERING

II YEAR– IV SEM

UNIT- V - SIGNALS, POINTS AND CROSSING

TOPIC 2 : NECESSITY OF POINTS AND CROSSINGS – TURNOUTS



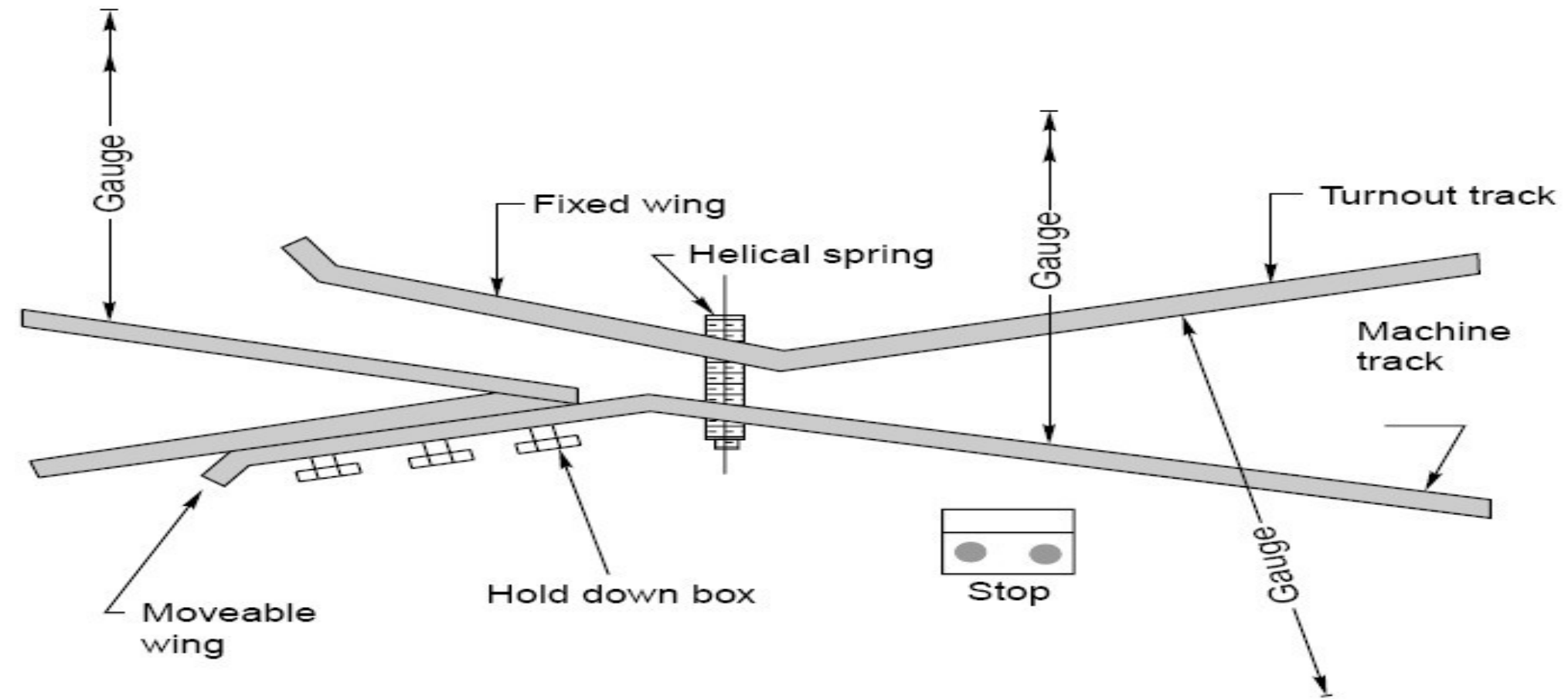


Fig. 14.8 Spring or movable crossing



POINTS AND CROSSINGS



Definition :

- ❖ Points, crossings, turnouts, cross-overs and such related terms are contrivances or arrangements by which different routes either parallel or diverging are and afford the means for trains to move from one route to another.
- ❖ Horizontal alignment means the direction of the railway track in the plan including the straight path and the curves it follows.



NECESSITY OF POINTS AND CROSSINGS

IMPORTANCE OF POINTS AND CROSSINGS

- ❖ Necessity Of Points And Crossings.
- ❖ Points and crossings are necessary because the wheels of railway vehicles are provided with inside flanges and, therefore, they require this special arrangement in order to navigate their way on the rails.
- ❖ The points or switches aid in diverting the vehicles and the crossings provide gaps in the rails so as to help the flanged wheels to roll over them.
- ❖ A complete set of points and crossings, along with lead rails, is called a turnout



NECESSITY OF POINTS AND CROSSINGS

Important Terms

TURNOUT:

It is an arrangement of points and crossings with lead rails by means of which the rolling stock may be diverted from one track to another.

❖ **FACING DIRECTION:**

If someone stands at toe of switch and looks towards the crossing, then the direction is called “Facing Direction”.

TONGUE RAIL:

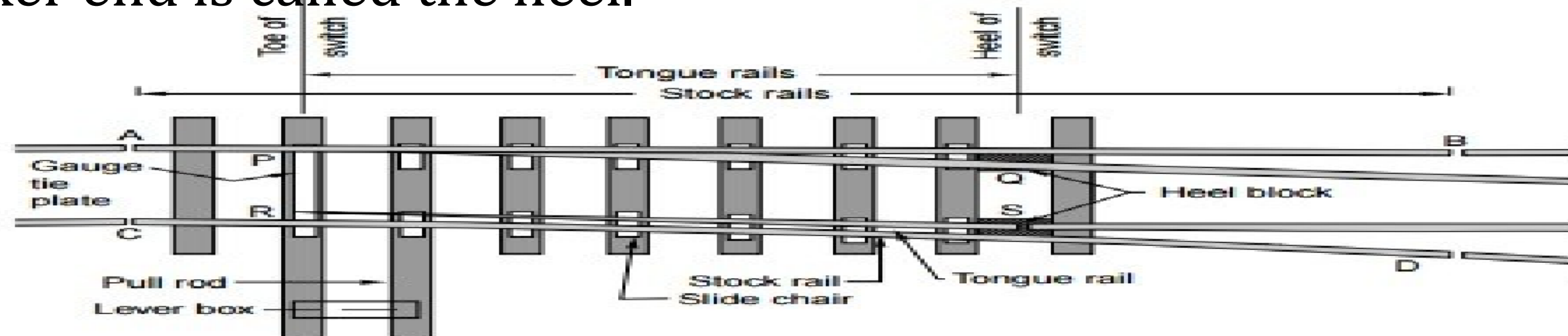
It is a tapered movable rail, made of high-carbon or manganese steel to withstand wear. At its thicker end, it is attached to a running rail. A tongue rail is also called a switch rail.



NECESSITY OF POINTS AND CROSSINGS

SWITCHES:

- ❖ A set of points or switches consists of the following main constituents
- ❖ A pair of stock rails
- ❖ A pair of tongue rails
- ❖ Also known as switch rails, made of medium- manganese steel to withstand wear. The tongue rails are machined to a very thin section to obtain a snug fit with the stock rail. The tapered end of the tongue rail is called the toe and the thicker end is called the heel.





NECESSITY OF POINTS AND CROSSINGS

CROSSINGS :

- ❖ A crossing or frog is a device introduced at the point where two gauge faces cross each other to permit the flanges of a railway vehicle to pass from one track to another.
- ❖ A gap is provided from throw to the nose of crossing.
- ❖ Check rails assures the correct movement and guides the wheels properly.

TYPES OF CROSSINGS:

- ❖ An acute angle crossing or 'V' crossing in which the intersection of the two gauge faces forms an acute angle.
- ❖ An obtuse or diamond crossing in which the two gauge faces meet at an obtuse angle. When a right or left rail crosses a similar rail, it makes an obtuse crossing.



References



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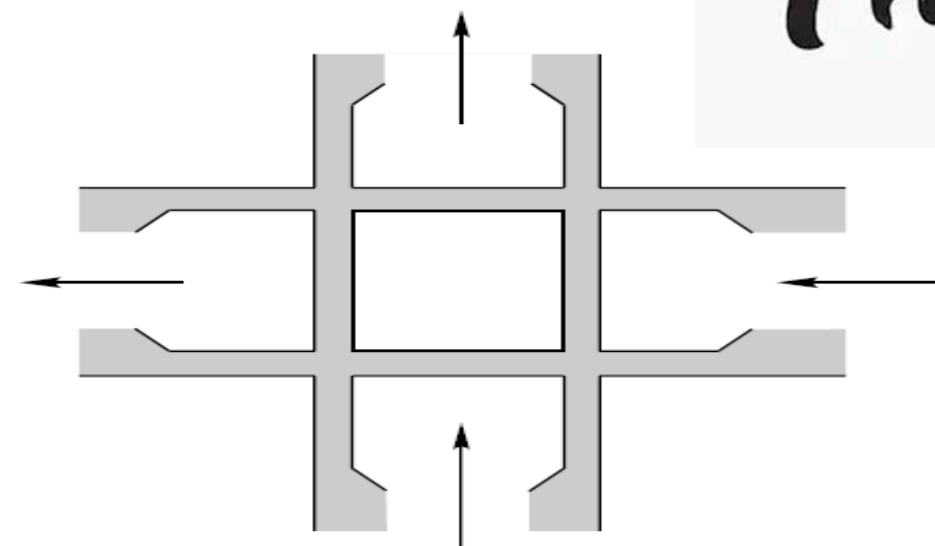
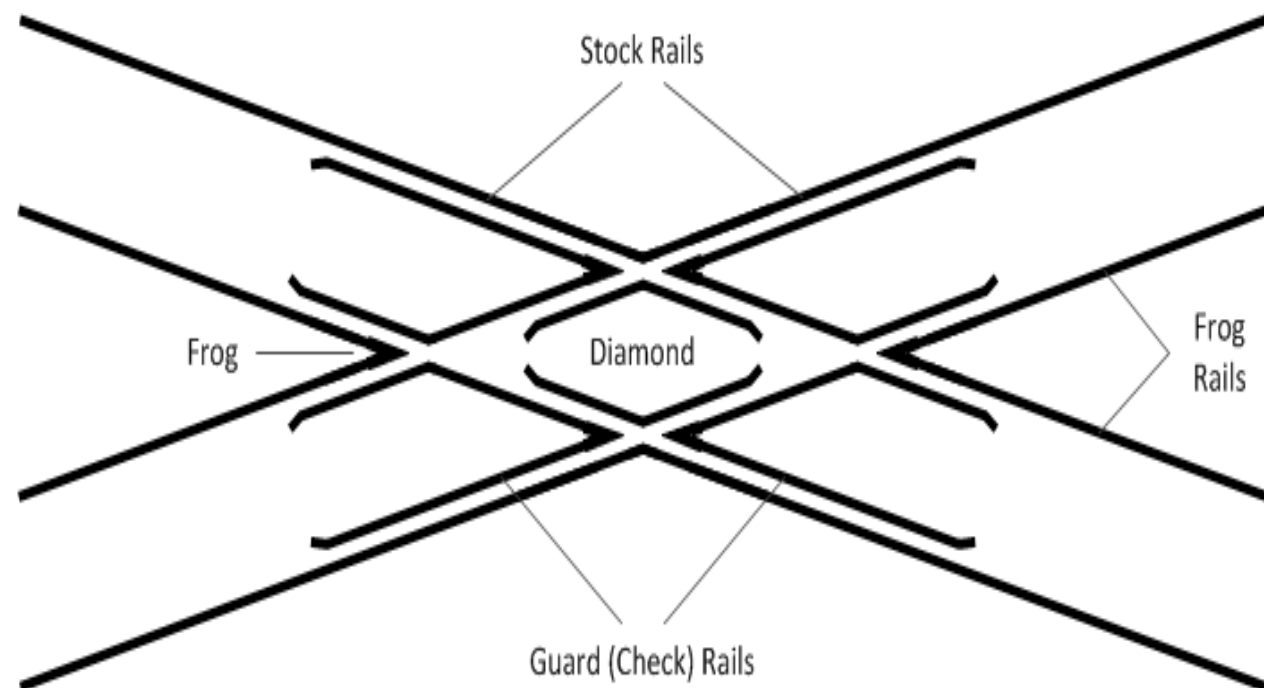


Fig. 14.7 Square crossing

Thank You