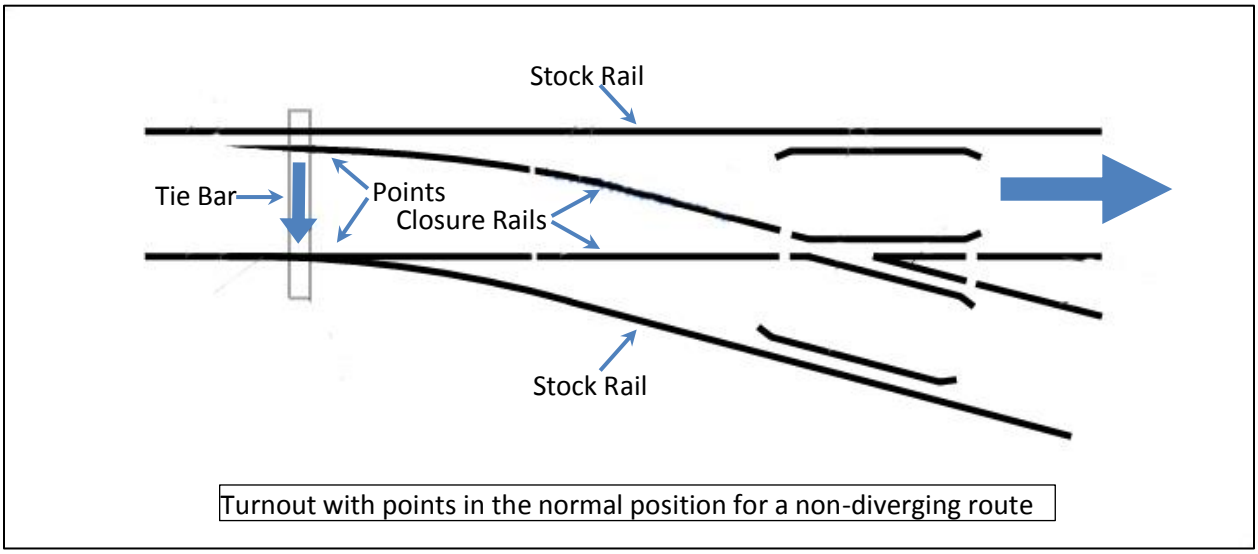
Shelburne Falls Trolley Museum

Information on Turnouts

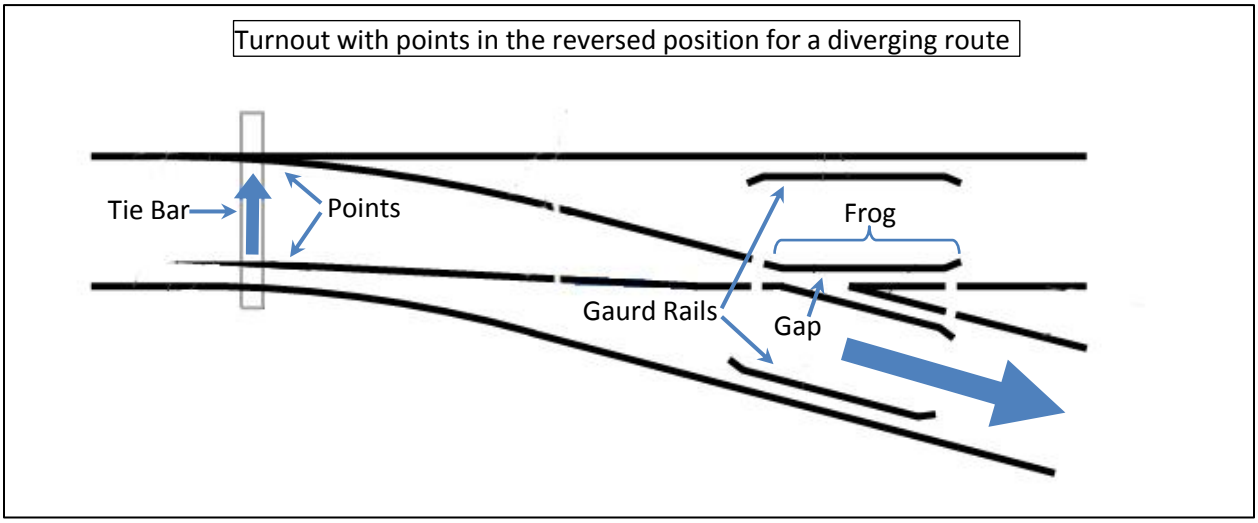
A "**Turnout**" is the part of a railway track structure where rail vehicles can be guided to different tracks. Turnouts are always part of the track at junctions. Turnouts are also sometimes called Switches.



Turnout with points in the normal position for a non-diverging route

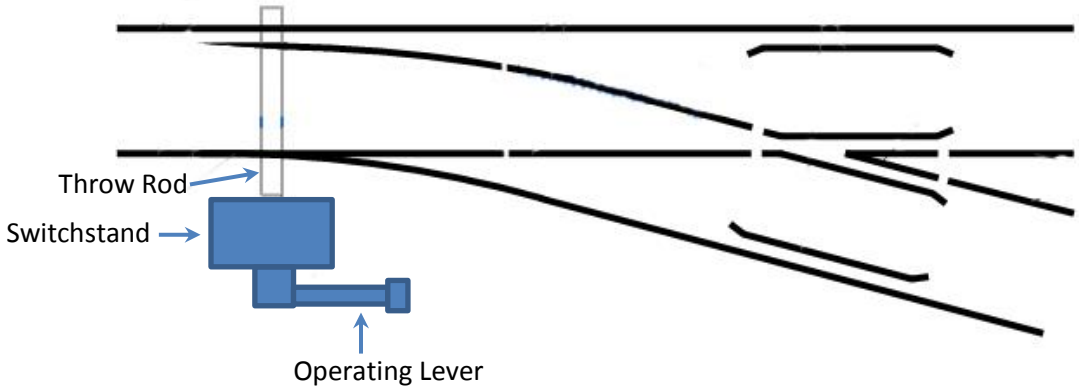
Turnouts have moveable sections of tapered rail called "**Points**". Each turnout has a set of two points joined by a "**Tie Bar".** The tie bar moves the points move back and forth together. The position of the points determines which route the turnout is set, or "**Lined**" for, i.e. the route a rail vehicle will take when passing through the turnout.

Turnout with points in the reversed position for a diverging route

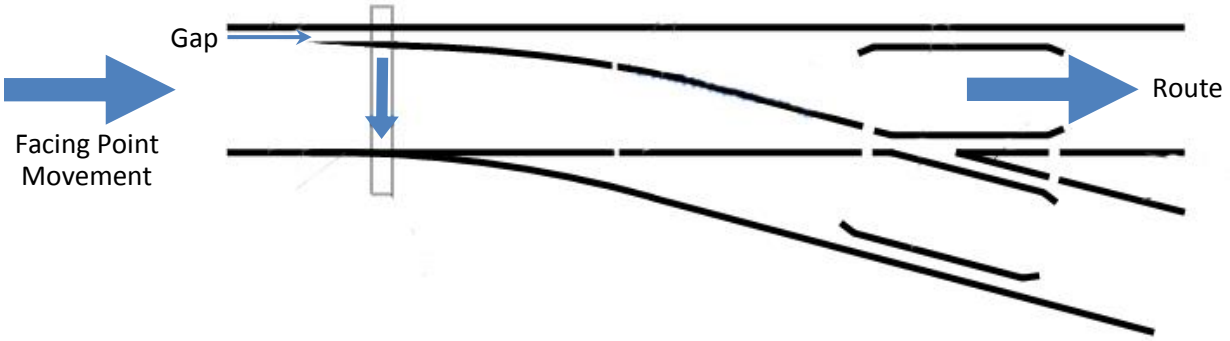


Turnouts have a stationary section called the "**Frog**" which contains a gap at the point where the rails for the two different routes cross each other. This gap creates a clear path for the wheel flanges to pass through. The frog works together with the "**Guard Rails**" to ensure the wheels follow the correct path through the gap.

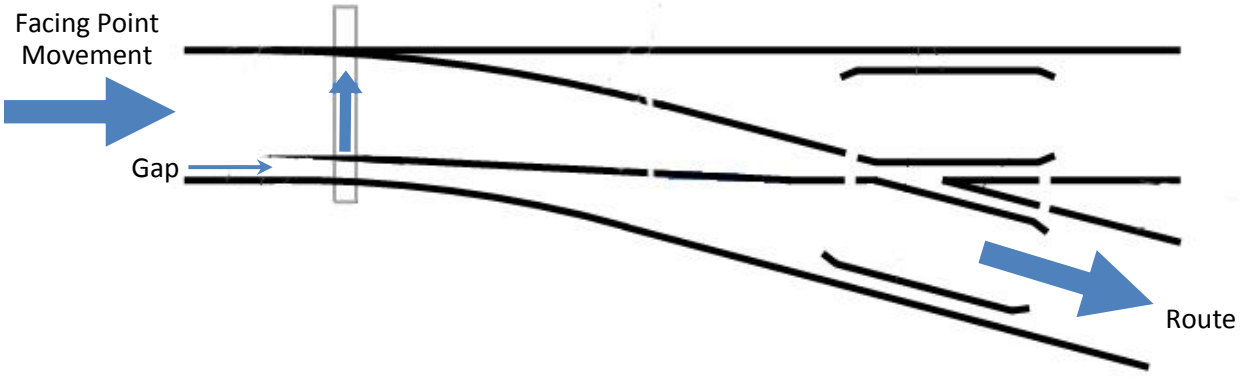
Manually operated turnouts have a "**Switchstand**" mounted beside the track which connects to the tie bar through the "**Throw Rod**". A key lock, which prevents movement of an "**Operating Lever**" on the switchstand, securely locks the turnout for one route or the other and prevents unauthorized tampering. Once unlocked, the operating lever can be used to move the points for the desired route. Moving the points is referred to as "**Throwing**" or "**Lining**" a switch (or turnout).



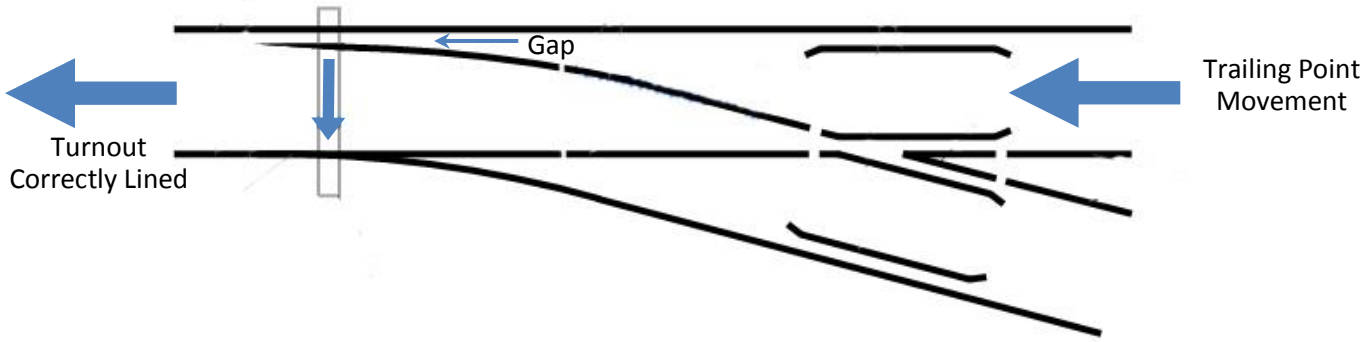
When a rail vehicle is moving toward a turnout from the side of the points, this movement is called a "**Facing Point**" movement. A facing point movement is one where there is a choice of route based on the position of the points.



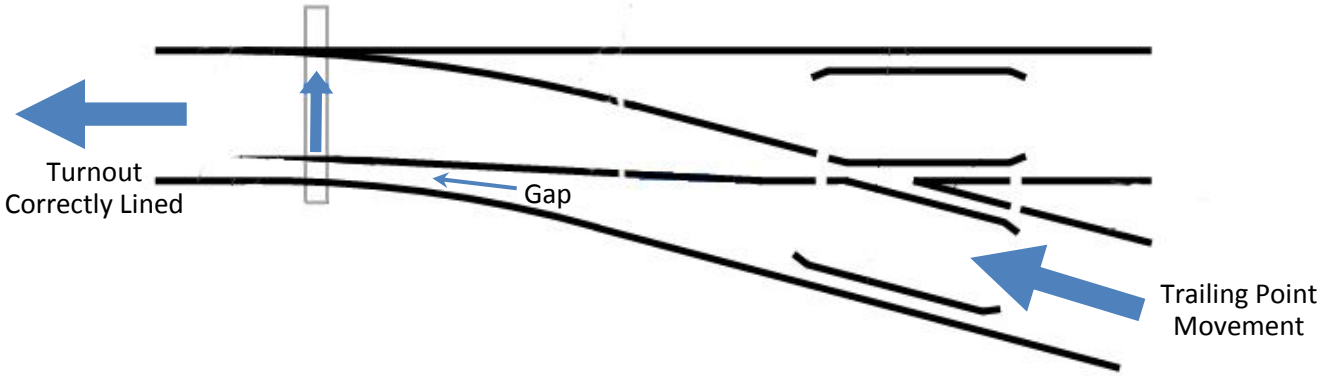
A rail vehicle making a facing point movement will be directed towards the side of the turnout where there is a gap between one of the point rails and its companion stock rail. <u>If the turnout is not properly lined, a rail vehicle making a facing point movement will end up on the wrong track</u>.



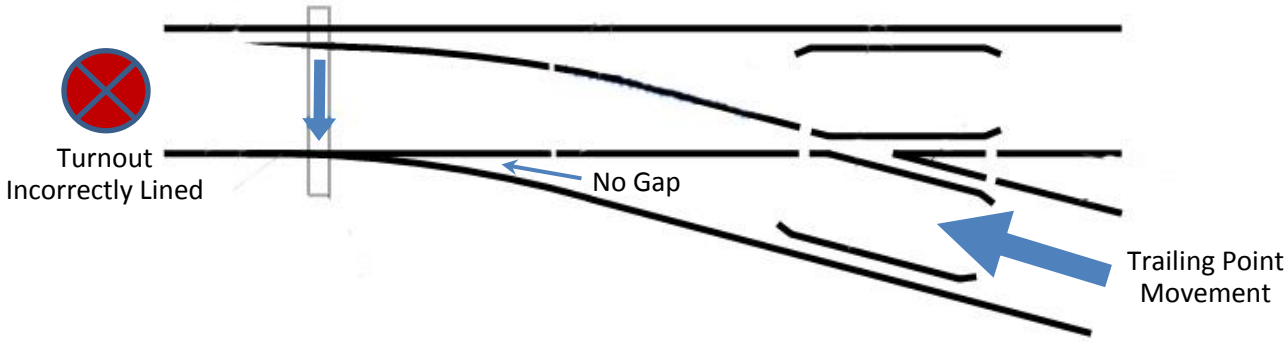
When a rail vehicle is moving toward a turnout from the side of the frog, this movement is called a "**Trailing Point**" movement. A trailing point movement is one where there isn't a choice of route since there is only one route forward, toward the singe track ahead.



A turnout correctly lined for a trailing point movement provides a gap at a location necessary for the passage of the wheel flanges along the inner (or gauge) side of the stock rail.



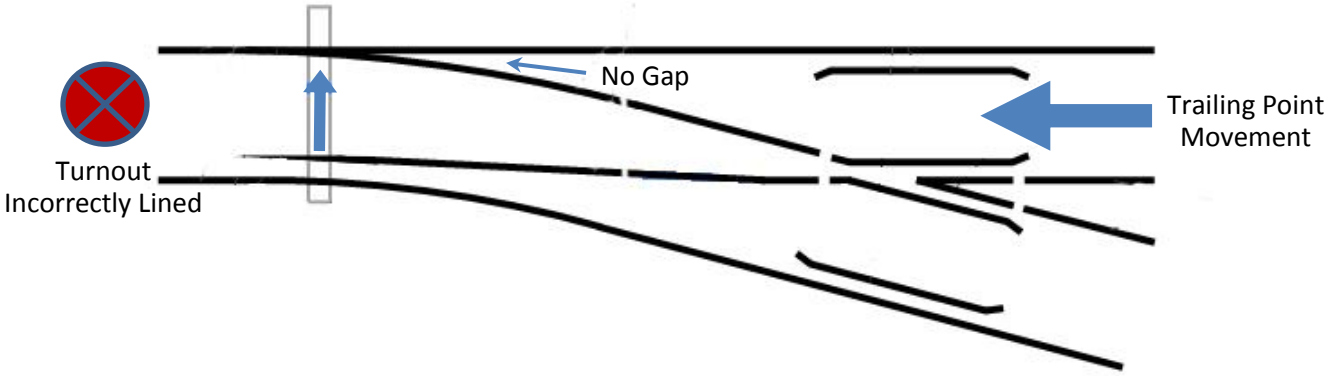
A turnout incorrectly lined for a trailing point movement lacks the gap needed for the passage of the wheel flanges.



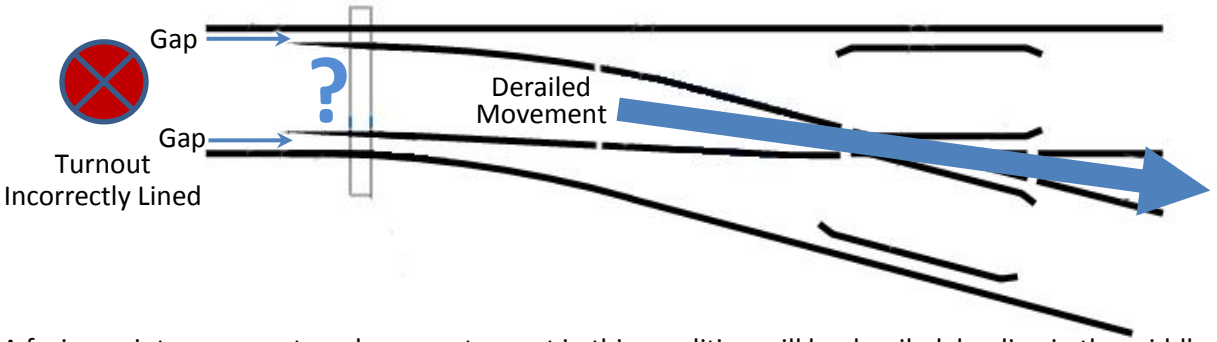
A trailing point movement through an incorrectly lined switch likely results in one or two very undesirable outcomes:

1. A Derailment
2. Turnout Damage

These outcomes, as well as misrouted movements have significant consequences on any railway. Therefore, all operating personnel are required to assure turnouts are properly lined before moving through them.



There is one more turnout condition that is certain to derail a Facing Point movement. This condition exists when the points are positioned midway so that a gap exists at both points instead of at just one. An obstruction, such as a small rock, or ice, wedged between the stock rail and a point can bring this about. A switchstand malfunction or an operating lever that was not secured in the correct position are other possible causes. It is therefore essential that when any turnout's operating lever is used to change the position of the points, a visual inspection of the points be made to assure that a gap exists at the correct point, and the other point is pressed tightly against the adjacent stock rail. It is also essential to make sure the operating lever is secure.



A facing point movement made over a turnout in this condition will be derailed, landing in the middle of the two possible routes. This mistake is known as "**Splitting the Switch**".