

Learn About Roller Coaster Part 1

By Oksirydoc

Jan 6, 2015

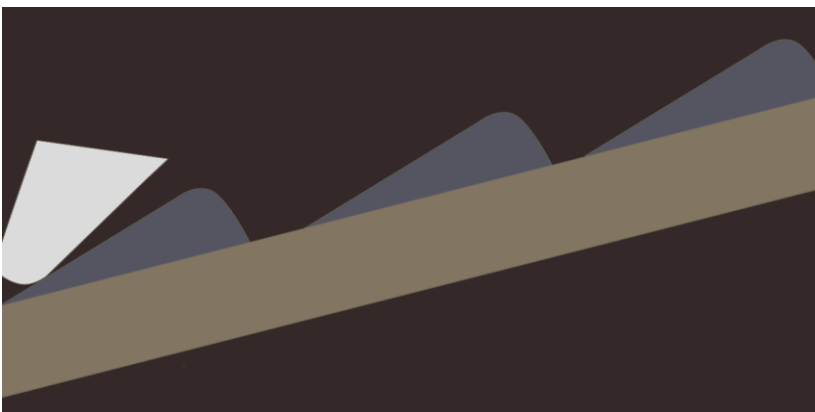
Anti-Rollback Teeth

Have you ever wondered what the clicking noise is when you are slowly going up the chain of a roller coaster? It's actually not the chain making that noise- contrary to popular belief. It's a safety device called an anti-rollback, a very simple yet effective device. The device does exactly what it sounds like, it prevents the train from ever rolling backwards in the event it becomes disconnected from the chain. The system is split into two parts: the dog which is attached to the train, and the rollback teeth which are on the track.



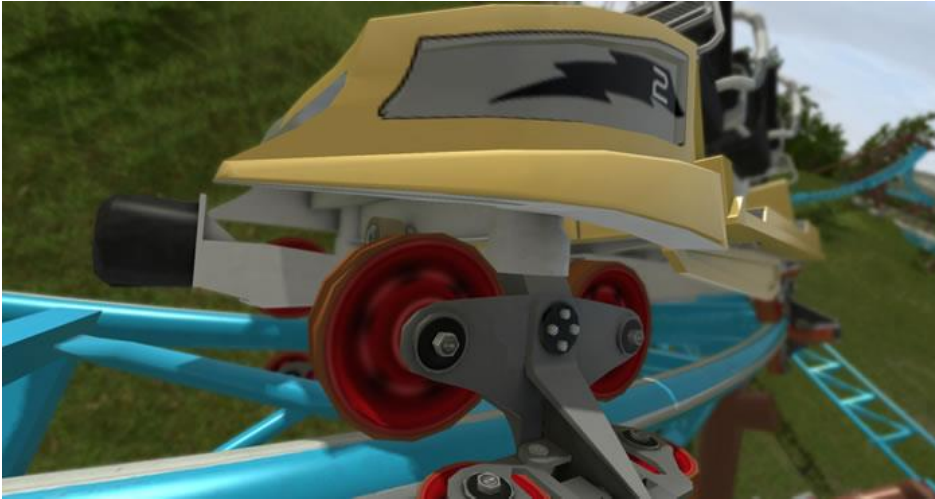
Anti-Rollback

The dog rises and falls as it rolls over the teeth making the clicking noise everyone is familiar with. If the train ever becomes disconnected from the chain, the dog will contact between two teeth and the train will rest on the rollback dog. Most trains have multiple anti-rollback dogs. This system has been in use for longer than you would think- 1846.



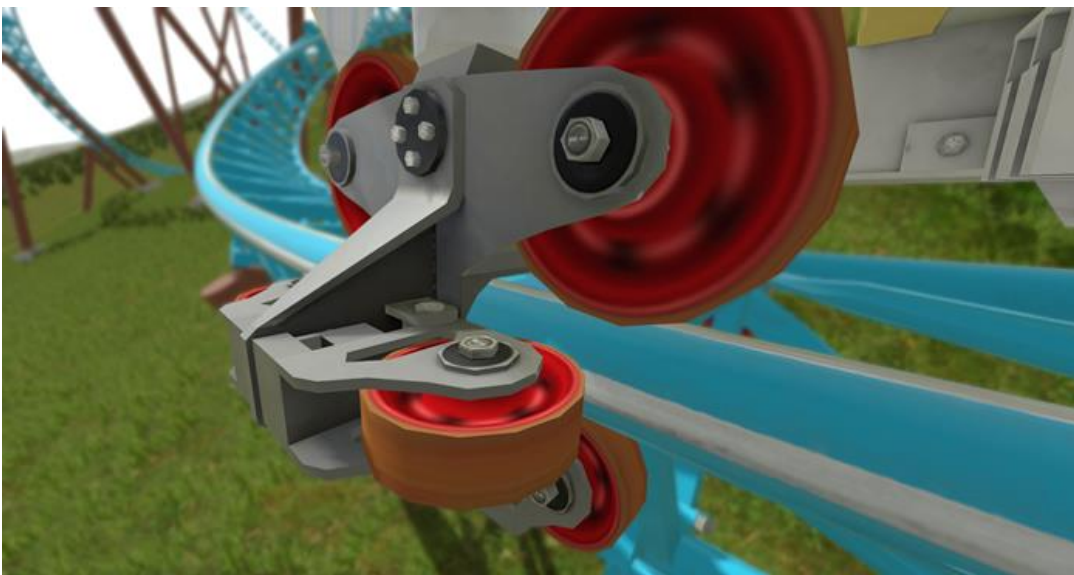
Road Wheels

Have you ever had the thought that your roller coaster train is going to fly off the tracks? Have no fear this event is nearly impossible. Roller Coasters use a three wheel system to keep the train safe and secure on the tracks. Your main wheel is called the road wheel, this is the wheel the train is rolling on and supports it vertically. This is always the largest wheel as it is taking the most force and weight.



Guide Wheels

Next you have your guide wheels, these wheels are almost always smaller as they are bearing much less weight and stress. These wheels prevent lateral motion and keep the train on the track from the sides.



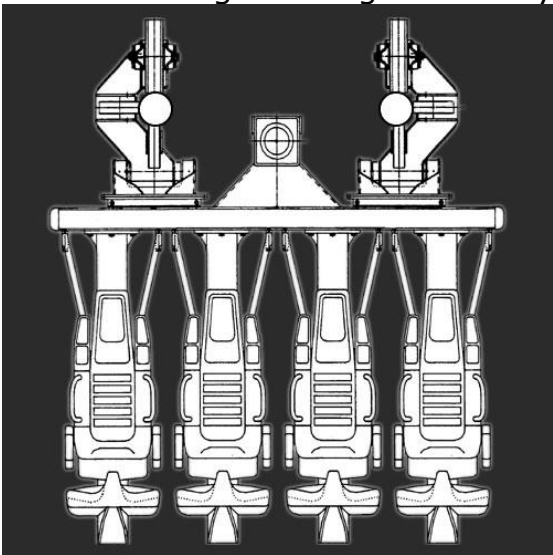
Up-Stop Wheels

Lastly you have you up-stop wheels, as you may guess these wheels do exactly what they sound like- stop the train from going up. These wheels are very critical for rides that contain negative G-Forces. In most cases these wheels are also smaller than the road wheels and are often the same size as the guide wheels, but there are certain cases where this is different.



Wheel Assembly Safety

Let's discuss something very interesting to me, let's say we have the most catastrophic failure and all of the wheels fall off. The wheel assembly or the piece that holds the wheels will now become a safety device, and will be tight enough to grab the track and the train will grind metal on metal until it stops mid-ride. This has never happened, but it's comforting knowing that everything is thought of, right?



Hydraulic Restraints

A very common fear among guests in amusement parks is that their restraint could become open in the ride, this is nearly impossible. Most modern roller coasters use a multiple hydraulic cylinder restraint device making it impossible to open where it is not designed to. These rides restraints can only be unlocked in the station with an electric connection or by using a battery pack device to unlock. These hydraulic restraints do not feature a clicking noise when you are pulling them down, this has been confused in many news stories I have read in the past few years.



Mechanical Restraints

Some older roller coasters as well as new ones use a mechanical ratcheting device for their restraints, this is equally as safe. If you are larger, and are wondering how safe it is when the ride operator tells you all you have to do is get that first click; I have good news for you. On most mechanical restraints the first click is actually 3 ratchets, ultimately making it fail-proof, so your first click is actually three.

