Adjustable Power Rack with Barbell

Daniel Hingston

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Power Rack Solidworks Project

Weightlifting has been a huge part of my life since I was an early teen. By the time I was fourteen years old, I had begun powerlifting and Olympic lifting. I no longer powerlift and Olympic lift due to injuries and the joint stress that those two styles of weightlifting induce, but I still bodybuild, which is much easier on the joints and has a much lower risk of injury. No matter what style of weightlifting a person participates in, a power rack and a barbell are the most versatile pieces of equipment in existence.

The hardest part of the power rack was the adjustable weight hooks. They are the pieces of the rack that hold the bar in an elevated position for squatting and bench pressing. These need to be able to be turned 90 degrees and inserted into the rack, then turned back so the hook is locked in place. This required precise measurements and an intricate shape to make sure everything fits properly and can be easily adjusted. During the process of this project, I learned how to do a pattern with the holes along the rack. I also learned how to put text on a part and extrude it using construction lines.

My understanding of Solidworks has increased dramatically due to this project. Before this project, I knew how to do everything that I was taught, but I would usually have to go through a little trial and error before I got it just right. After this project, my building became a much more fluid process. I could quickly make simple parts that would normally take me a few minutes to make, which really made my whole project much more efficient.

Throughout my life, I have worked on and around multiple different power racks. The one that I produced is a fairly simple recreation of the old rusted power racks I use at my hometown gym. They may be old, but they have character and get the job done. They are Rogue power racks similar to the one seen below.
Photo Credit: http://www.roguefitness.com/media/catalog/product/r/-/r-3-power-rack-th_1.jpg