NLTMW-NDCL

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Published on: Oct 22, 2016

Located at: http://www.youmagine.com/designs/nltmw-ndcl

Short description:

A mechanical design with lots of gears

Description:

Thanks for inspiring me to actually build something from concept to a finished item. When I first saw this contest, I knew that I wanted to make the time to try to build something mechanical, using as many printed parts as possible. My inspiration for this design was a combination of two things from my childhood … the Hot Wheels Super Charger, which used opposing rotating wheels to hurl cars along the track, and an egg beater which used bevel gears and a crank handle to spin the blades (yes, I am THAT old). I started with some basic gear ratio calculations, and had a bad flashback to high school and college drafting classes, while I researched bevel gear designs. Online gear design tools are WAY better than doing them by hand back in the old days. After several failed attempts at modeling the bevel gears, I found a steel gear manufacturer online and used their basic design, then modified it to meet my needs and to help it print properly and quicker with less plastic. From there I used Rhino 3D and Lightwave 3D to model all of the pieces that I needed to make this thing work. I went back to the proverbial drawing board many times, and went through a fair amount of filament running test parts, used a few bad words, but, the final design gives a nod to the inspirational items and it's not far from what I originally envisioned. It even works! You can see some short videos on my YouTube channel. First Tests: https://www.youtube.com/watch?v=Cda2nNcDNrI Unfortunately, the crank handle broke on the third launch, but, the first 2 were successful. So, I designed a replacement handle to attach to the broken stub. An hour of so on the printer and I had 2 handles (yes, I made another spare). Super Glued it in place and then shot some more video and photos. Second Tests: https://www.youtube.com/watch?v=HNCYdeUIF1U Closeup View: https://www.youtube.com/watch?v=C1icOGBHiiI Showing how the gears all work and how the dart is propelled by the spinning grooved pulleys. The only store bought parts are a few bolts and nuts, super glue and hot glue to hold things together, some grease to make the gears run smoother, and of course a Nerf dart for testing. Overall, this has been a great experience, that has reminded me why I bought my first 3D printer, to take something from inside my brain and make it real. Thanks for reviewing my contest entry and good luck to all entrants! And remember ... Never Let The Machines Win Please note: Safety was not part of the original design parameters. This item includes moving parts which may cause harm to fingers, clothing, jewelry, hair, etc. Also, remember that it is designed to hurl a projectile through the air so, please be careful. The designer will not be held liable for injuries or damage caused by this device. You have been warned.

If you can, please use the online documentation found at http://www.youmagine.com/designs/nltmw-ndcl because those may have been been updated. Also, there you can interact and provide praise and/or feedback.