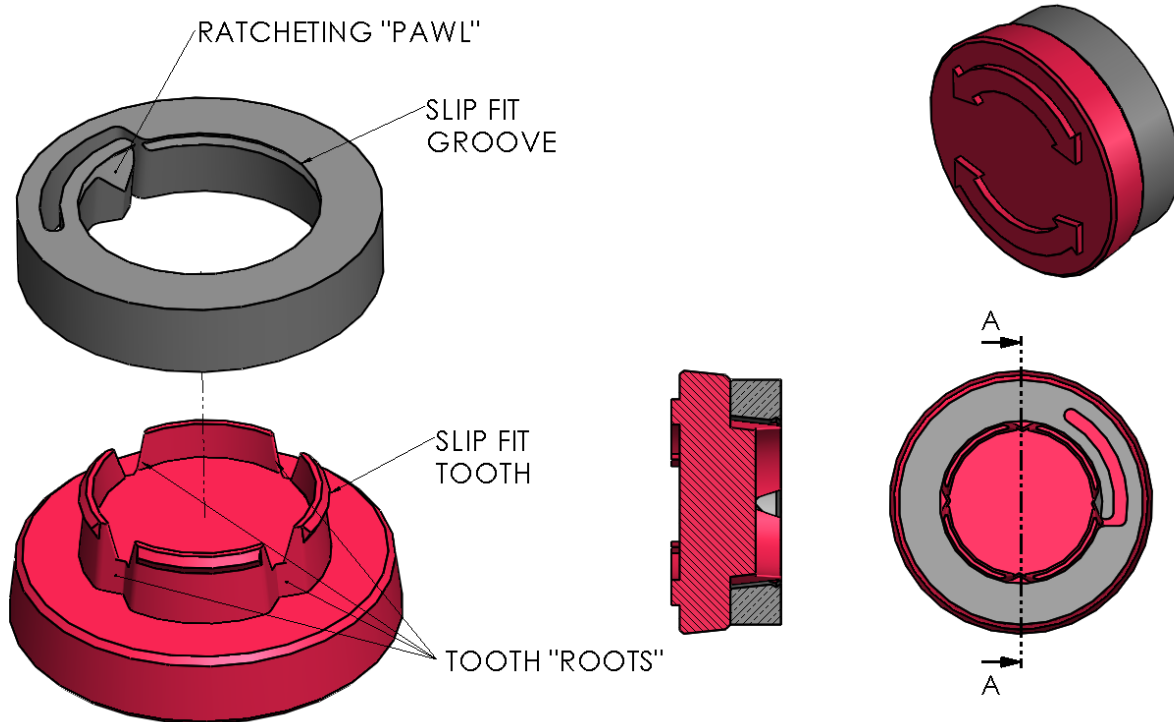


Global CAD Mechanism Challenge

David Gardner

Design consists of 2 ratcheting parts held together with a cantilever snap fit. Passive locking was accomplished via something like a ratchet mechanism. When the user twists part A with enough force to overcome the resistance of part B, the pawl slides up and out of the root. After 90 degrees, the pawl will snap back into the next tooth's root. The parts have draft on the inner faces to enable faster assembly by self-centering/aligning the parts. In addition, the face a user would hold to twist has a slightly larger diameter and has draft for some ergonomic comfort.

I sketched out a bunch of concepts (see page 2). I try to draw out multiple ways of doing things. I contemplated using cotter pins, retaining rings, and castle nuts, mostly because I think they look cool, but I liked the simplicity of making the least number of individual parts. I also considered the ease of manufacture and assembly. Using more off the shelf parts might end up being simpler if there were constraints on the manufacturing.



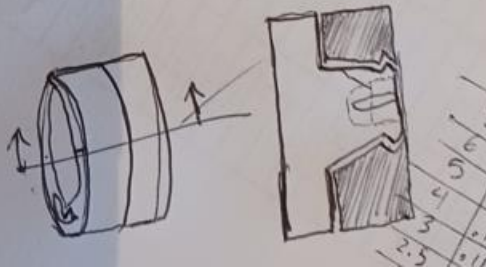
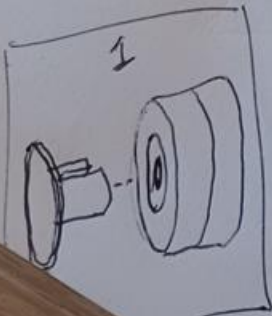
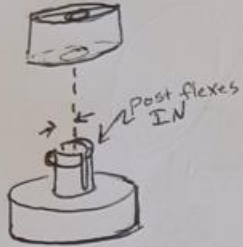
Passive CAD Mechanism Challenge

• Detent



Cool Stuff

- cotter Pins
- castle nuts
- Spring pins
- Retaining Rings



6
5
4
3
2.5
2