

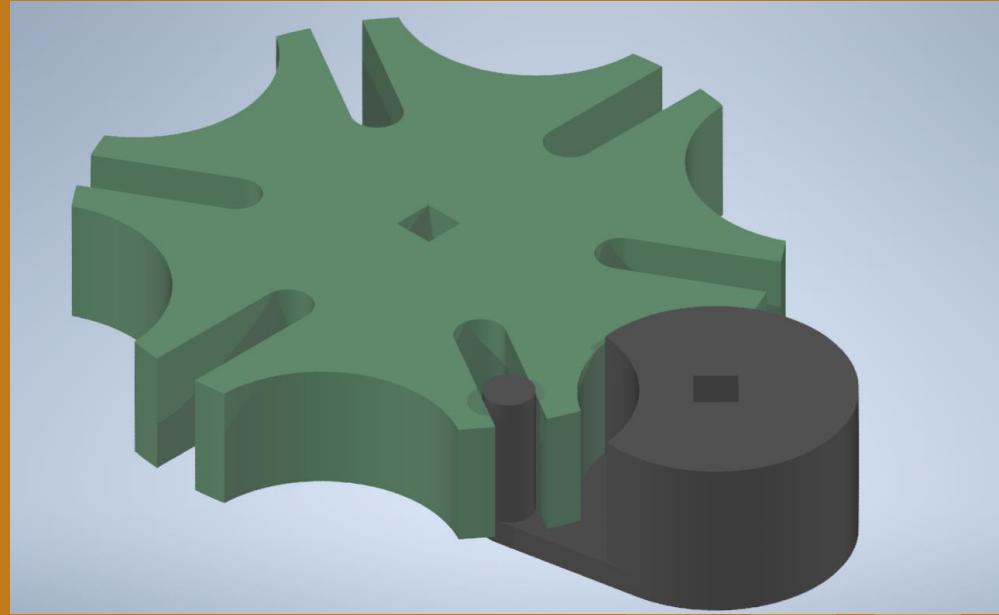
# VEX Geneva Mechanism Gear Kit

By Team 39k



# Purpose and Usage

A geneva mechanism allows for precise timing increments from a sole input. For every rotation of the drive gear (black),  $\frac{2}{3}$  of the time the driven gear (green) will stay in place. For the remaining  $\frac{1}{3}$  of rotation, the driven gear will turn rapidly.



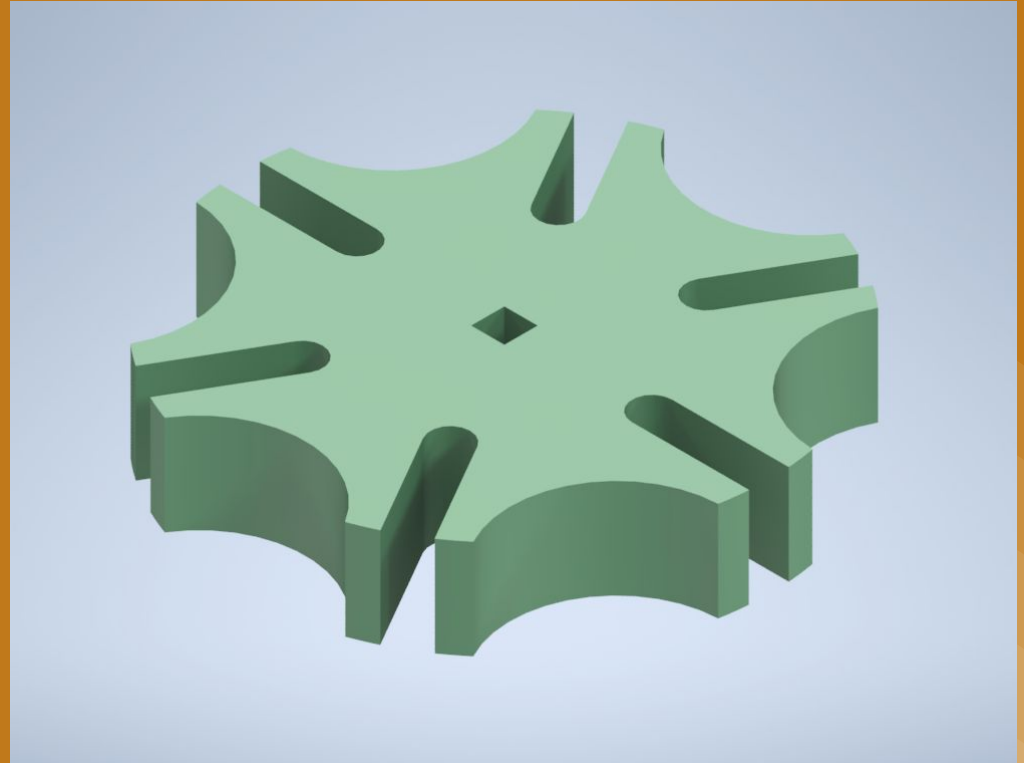


# Designing the Gears

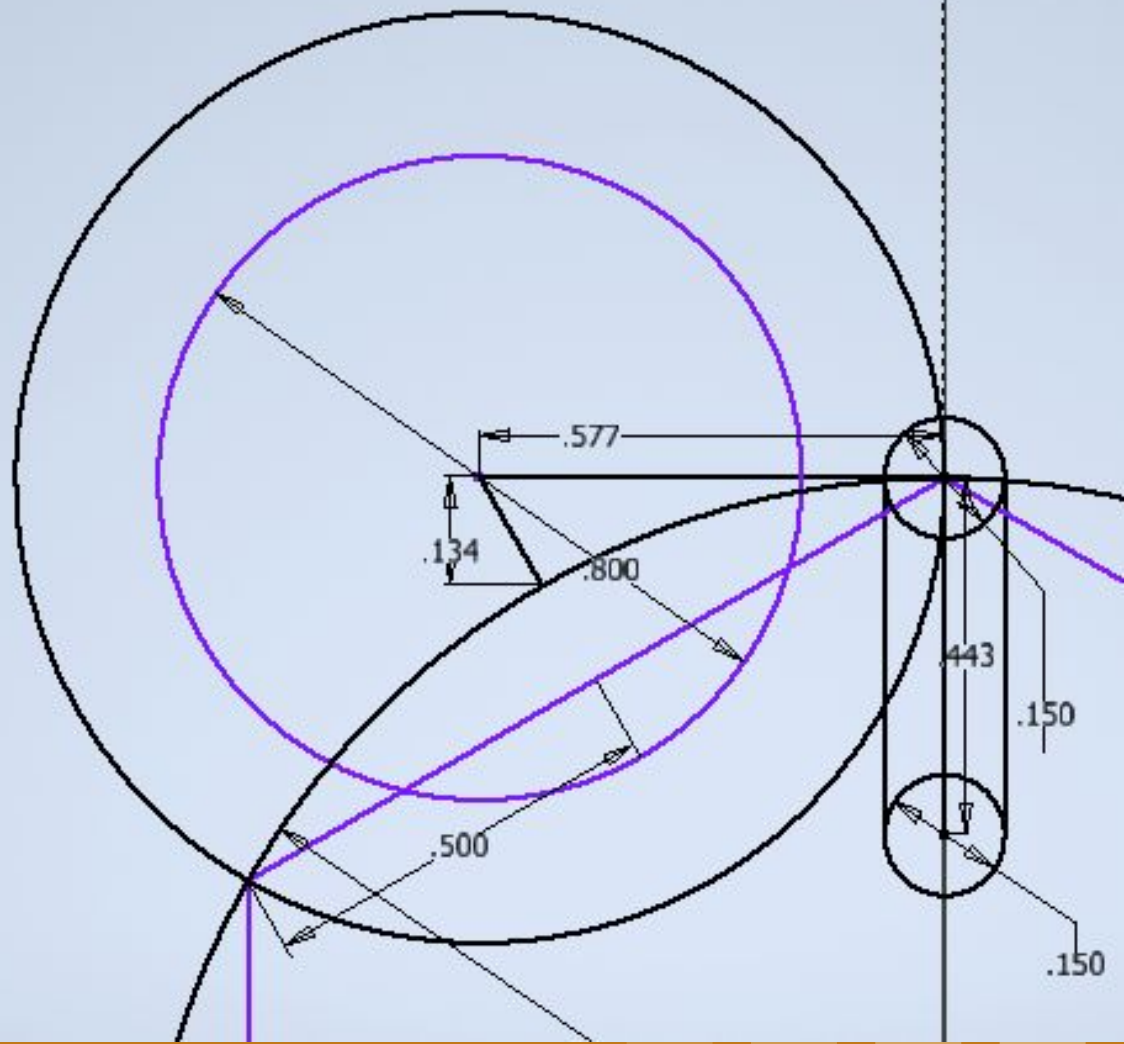


# Driven Gear

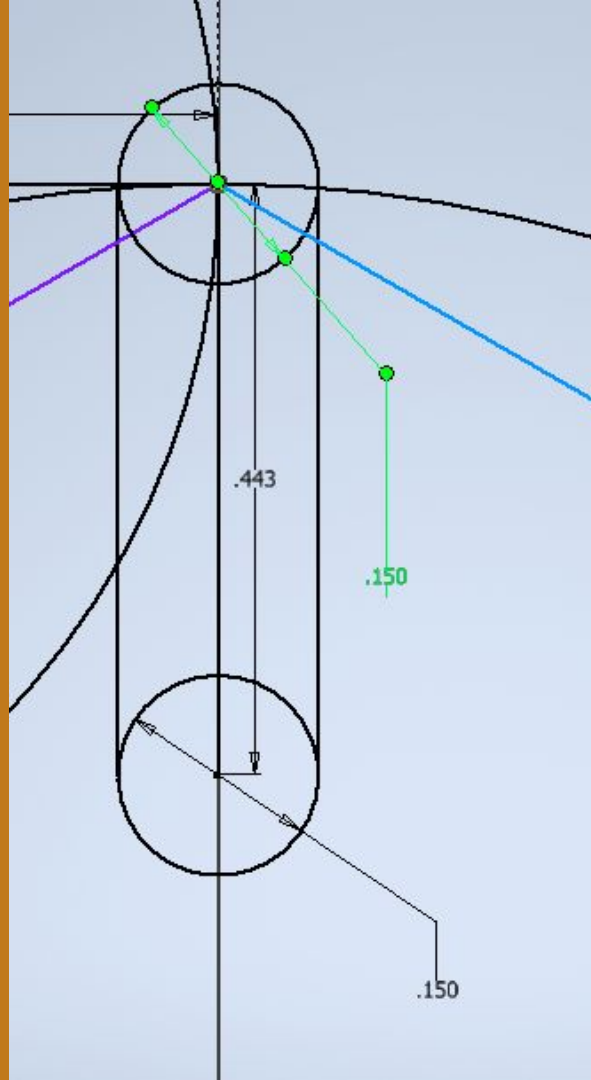
First, we had to design the driven gear, as the drive gear meshes into it. We first made the initial circle, cutting initial holes for the drive gear to slot into. Finally, we used angle lines to repeat these cuts 6 times symmetrically. Each of these steps is shown on the following slides



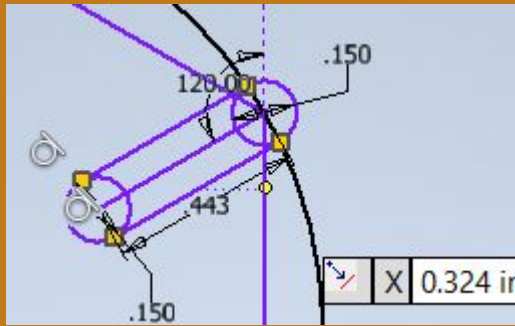
Cutting the hole so the driven gear will lock when the pin is not engaged.



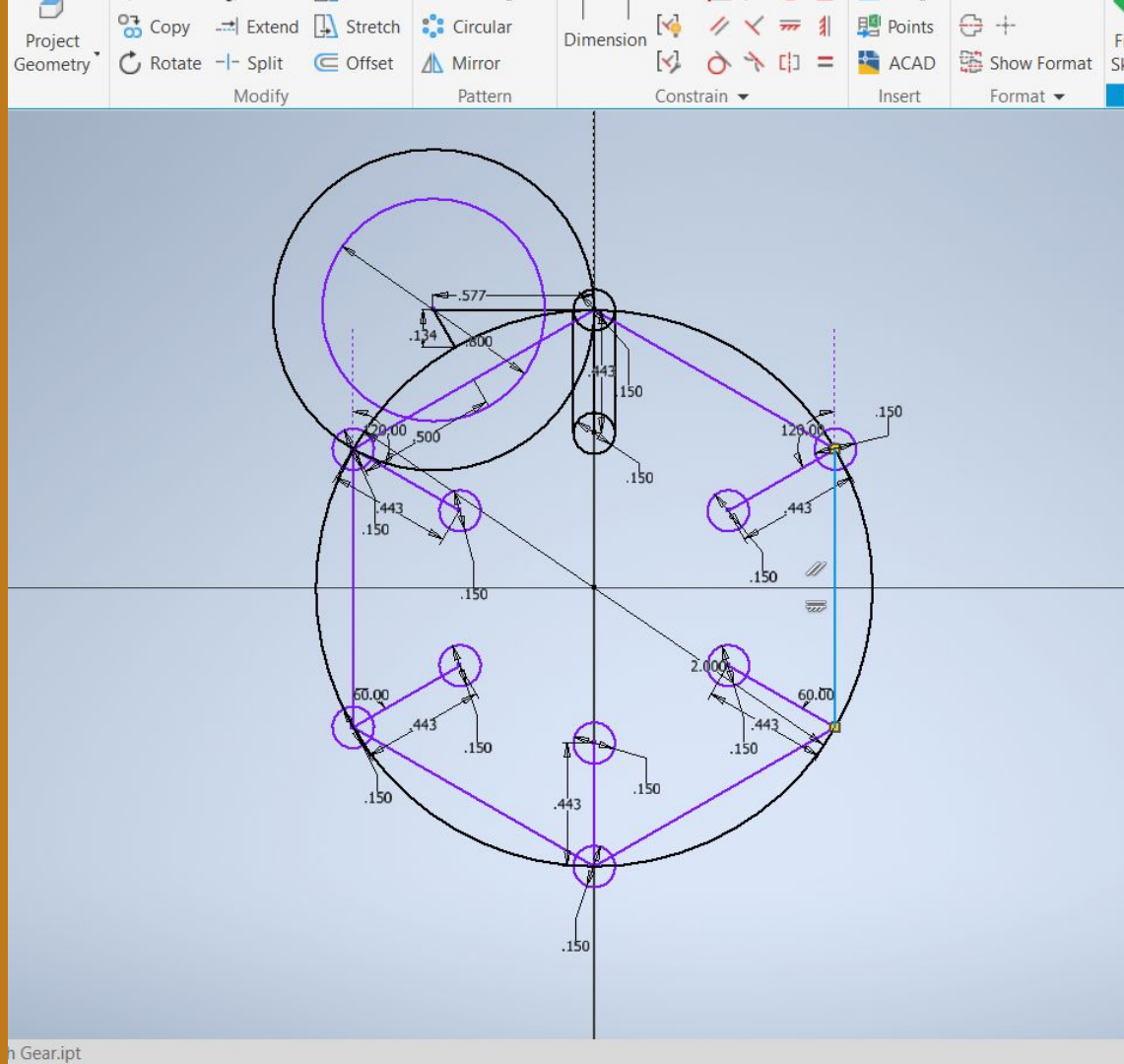
“Slot” for the pin on the  
drive gear.

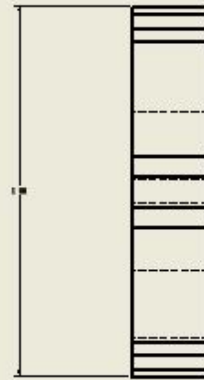
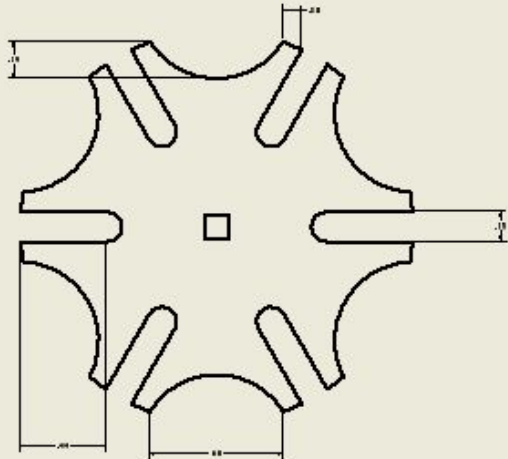
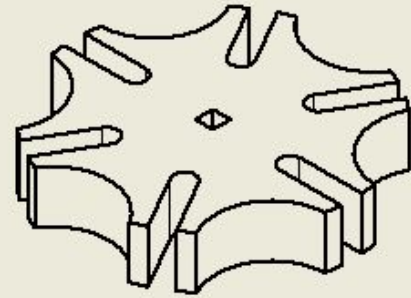


Repeating the cuts in a hexagonal pattern across the gear



Making use of the tangent locks in Inventor



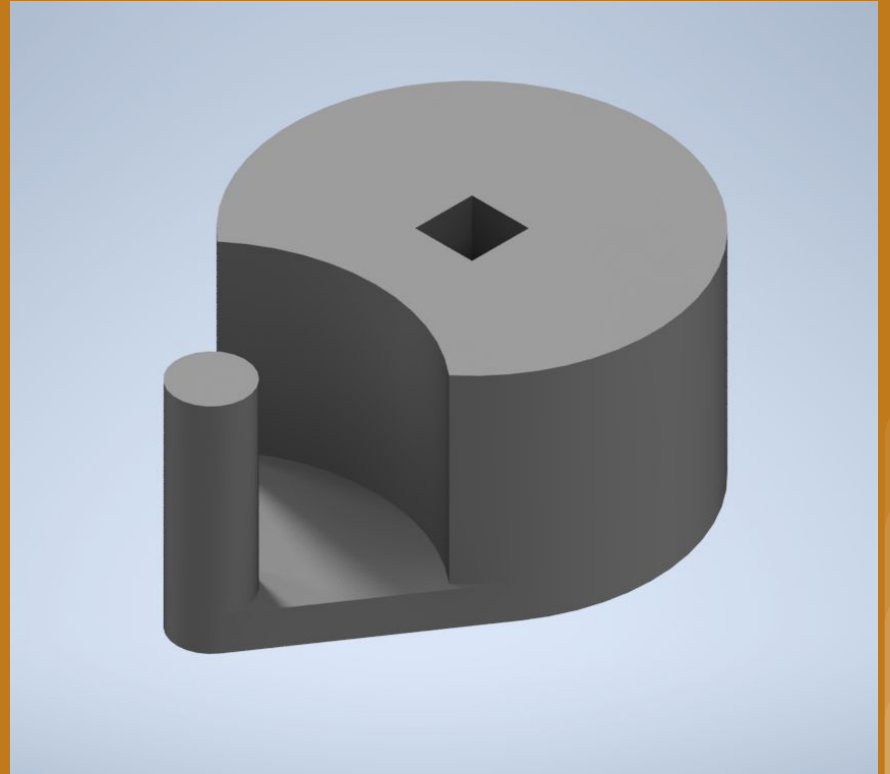


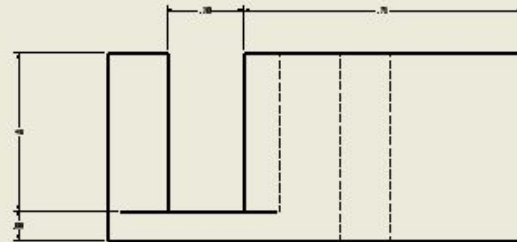
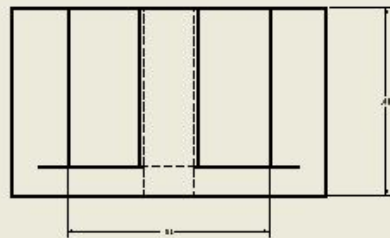
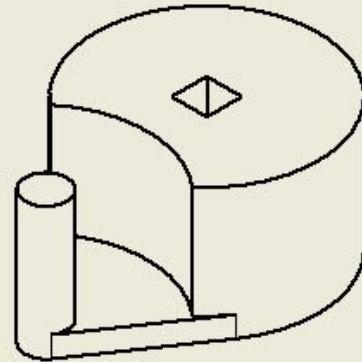
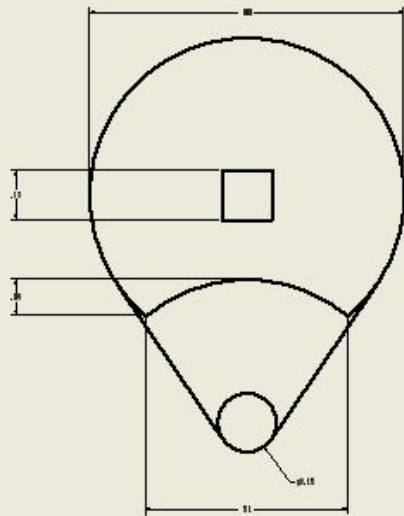
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BY		Driven Gear of Geneva Mechanism	
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# Drive Gear

By the time the actual Drive Gear is designed, most dimensions have been determined. From here, we just drew the 2 circles for the lock and pin, and extruded up. Finally, we make cuts in the big circle to ensure it doesn't jam.

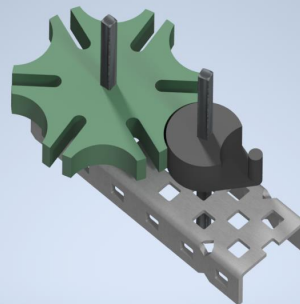
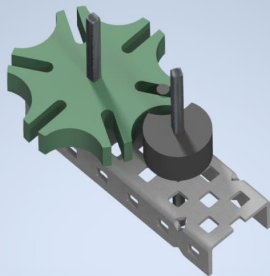
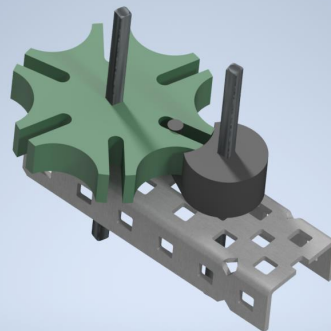
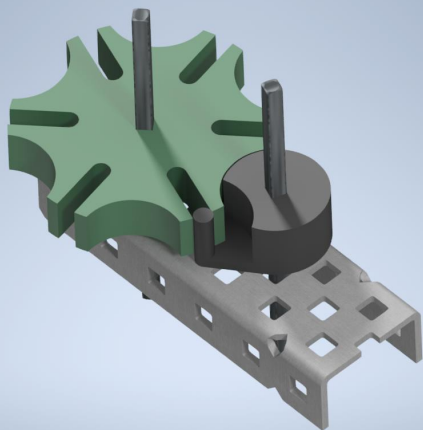




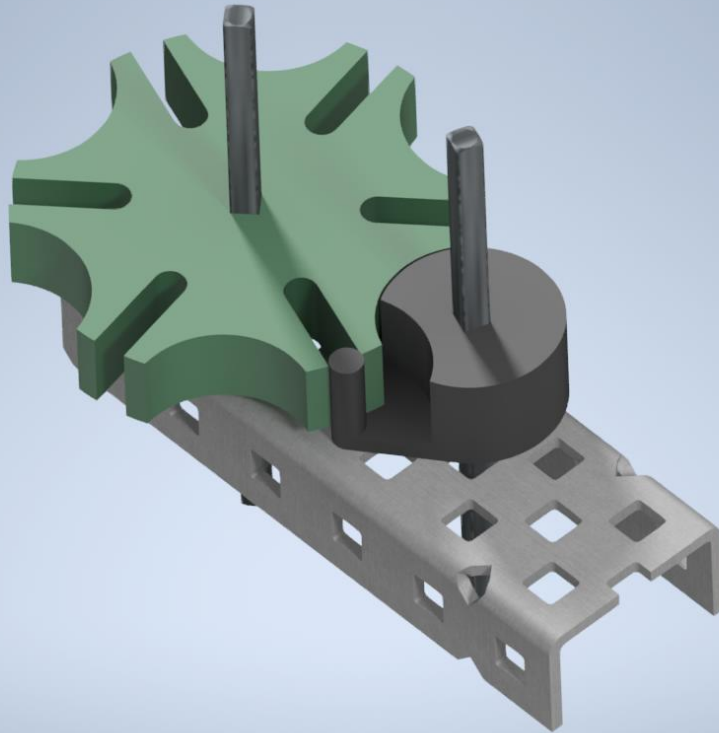
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DR. SHAM B. SHINDE	12/05/2024		
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DR.		Drive Gear of Geneva Mechanism	
PROFESSOR			
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The background is a solid orange color. In the top-left corner, there are three vertical bars of varying heights, each composed of several overlapping semi-transparent orange circles. In the bottom-right corner, there are four vertical bars of increasing height from left to right, each also composed of several overlapping semi-transparent orange circles.

# Full Rotation of the Gear



# Ray-Trace Render



The image features a solid orange background. In the top-left corner, there are three vertical bars of varying heights, each composed of several overlapping semi-transparent circles. A similar set of four vertical bars is located in the bottom-right corner, also composed of overlapping semi-transparent circles.

**All work done and  
rendered in Inventor  
2021.1 (Build 245)**



**Thank You!**

