

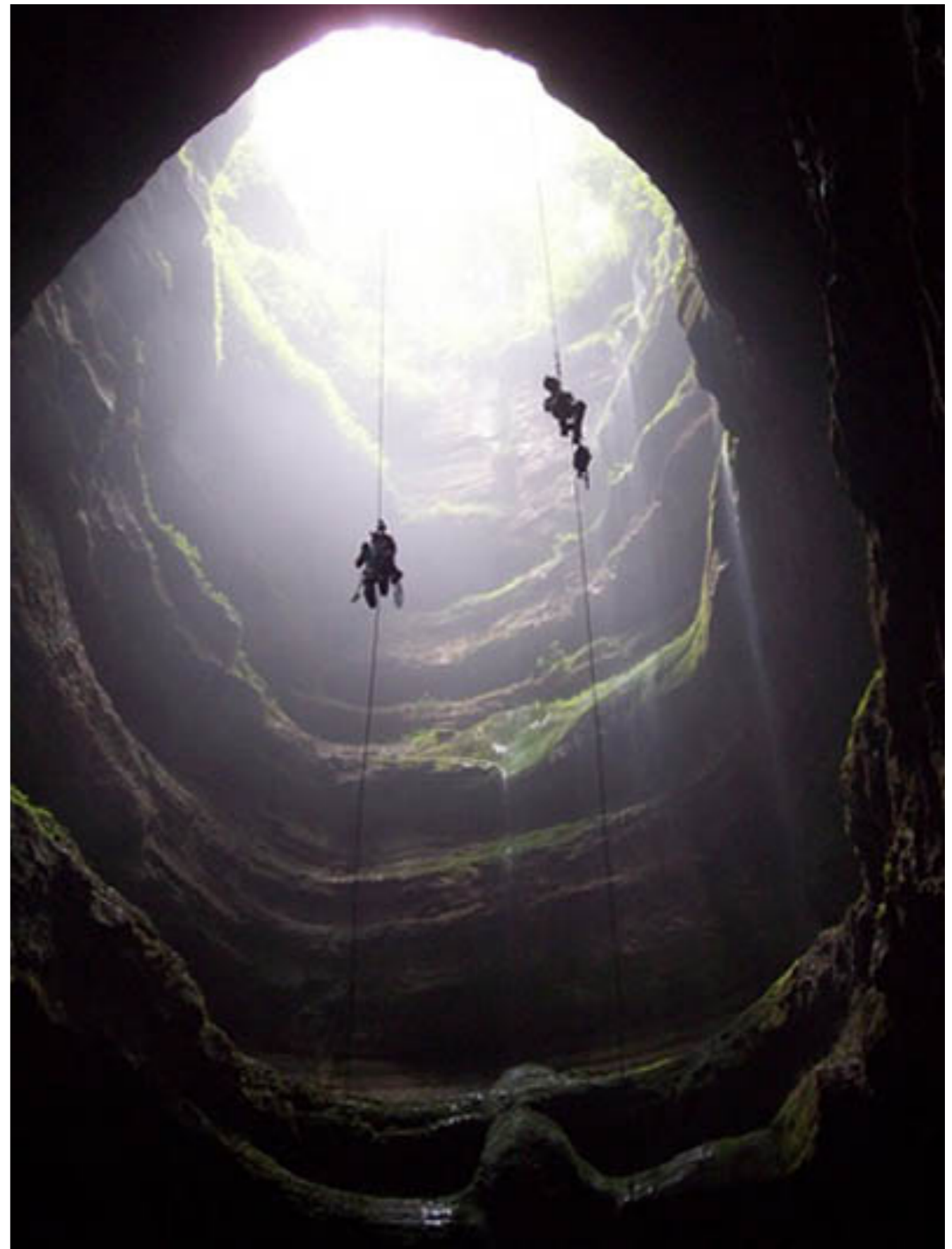
AscendAble

Up, Up, and Away!

Sketch Model Review
Yellow A

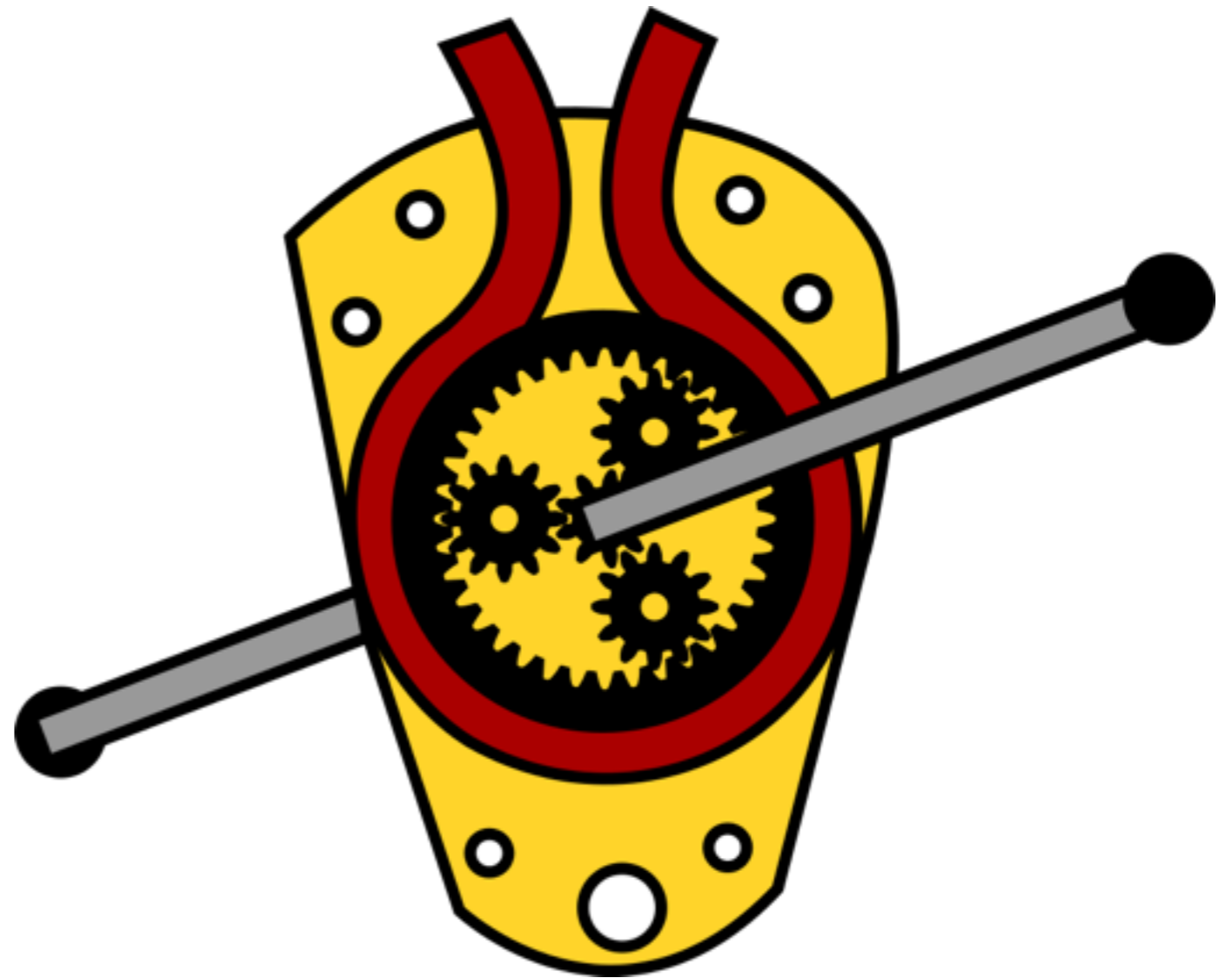
“ A device that helps with ascending is a caver’s dream. ”

- Kayla Esquivel, *Avid Climber*

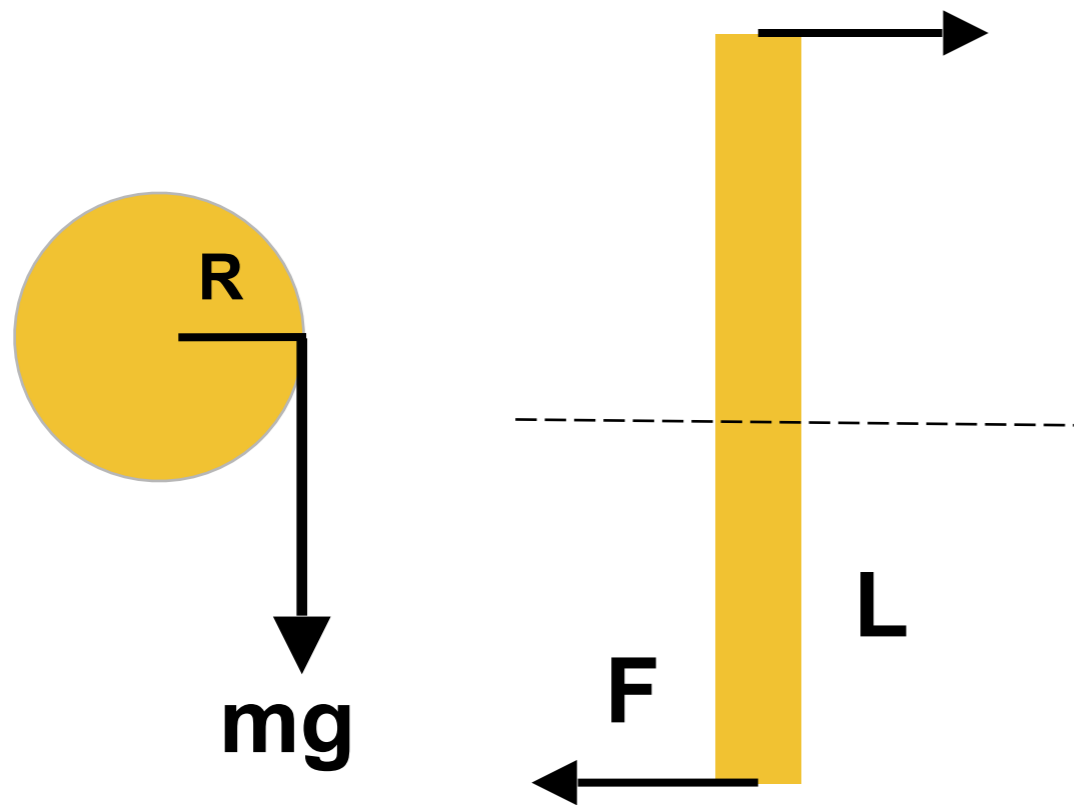


Key Features

- Hand crank
- Lightweight
- Small force required
- No external power source



Gear Ratio Calculation



- Capability: 300 lbs
- Person can exert 15 lbf₁
- 6in lever arm
- Safety factor of 5

$$\text{Ratio} = 7:1$$

Gear Ratio Takeaways

- 7:1 is a feasible ratio
- Very common in fishing equipment
- Can be achieved many gearing systems



7

Need



Idea



Market



Future

A

Physical Model

- Planetary gears
- Increased friction
- Hand crank for ergonomics
- Too large



Need



Idea

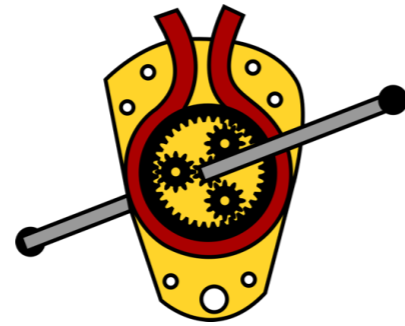


Market



Future

A



AscendAble



Gas/Battery Powered



Traditional

	AscendAble	Gas/Battery Powered	Traditional
Exertion	+	+	-
Weight	+	-	+
Cost	+	-	+

Need



Idea



Market



Future



10,000+ Cavers

Need



Idea



Market



Future

A

Next Steps

- Test aluminum prototype with full weight
- Build rope locking mechanism
- Explore other gearing options
- Teardown similar devices