Summary of types of Mechanisms

Mechanism Type	Function of Mechanism	Common Applications
Rack and Pinion	Conversion of Motion: Changes rotary motion to linear motion and vice versa.	Car steering, tripod stands
Ratchet and Pawl	Control of Motion: Allows rotation in one direction while preventing it in the other.	Fishing reels, winches
Screw	Conversion of Motion: Changes rotary motion into linear motion.	Adjustable spanners, glue sticks
Spring Loaded	Control of Motion: Resists compressive, tensile, and torque forces.	Retractable pens, trampolines
Worm Gear	Control of Motion: Controls speed and direction of rotation.	Small electric motors, Venetian blinds
Cranks	Transmission of Motion: Transfers rotary motion to other components.	Bicycle pedals, pencil sharpeners
Crank & Slider	Conversion of Motion: Changes rotary to reciprocal motion or vice versa.	Car engines
Cams	Conversion of Motion: Changes circular motion to reciprocating or oscillating motion.	Cam timers in car engines, automata toys
Four Bar Linkage	Conversion of Motion: Changes one type of motion to another based on link lengths.	Pop-up books, car windscreen wipers
Closed-Loop System	Control of Motion: Uses feedback to control speed, direction, distance, and force.	Thermostats, automatic doors

Summary of Motion Conversion

Input Motion	Output Motion	Mechanism
Linear	Linear	Simple Pulley, Compound Pulley
Linear	Reciprocating	Levers
Linear	Rotary	Rack and Pinion
Linear	Oscillating	-
Reciprocating	Linear	Levers
Reciprocating	Reciprocating	Springs (for damping)
Reciprocating	Rotary	Crank and Slider
Reciprocating	Oscillating	-
Rotary	Linear	Screw Mechanism, Rack and Pinion
Rotary	Reciprocating	Crank and Slider
Rotary	Rotary	Spur Gear, Bevel Gear, Step Pulley
Rotary	Oscillating	Cam and Follower
Oscillating	Linear	-
Oscillating	Reciprocating	-
Oscillating	Rotary	-
Oscillating	Oscillating	Springs (for damping)