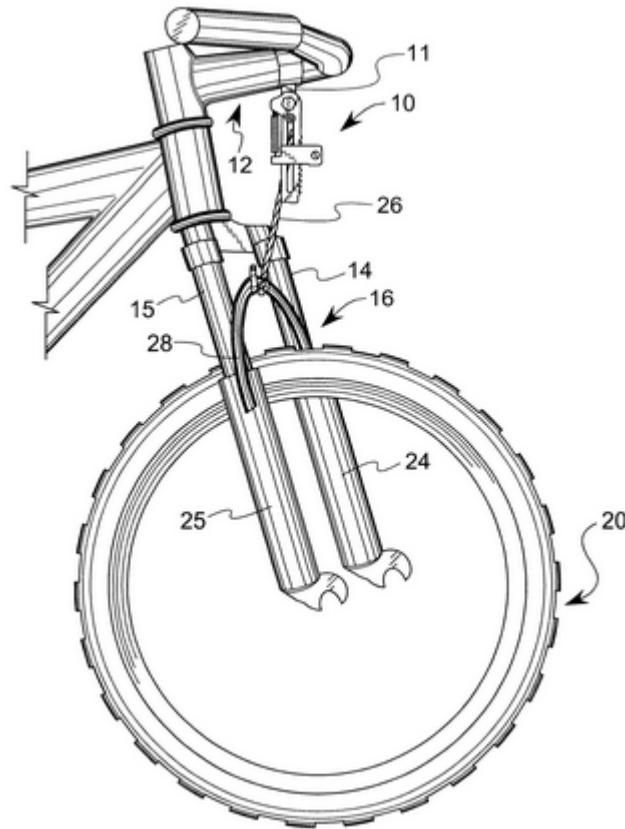


p172 (book p 431) **38. Guiding controls:**
Parts of an object that maintain a specific motion



The window track is a **translational guide** because it ensures that the window will slide in a straight line and not fall on your neighbor's nose.



The forks (24,25) attached to the axle are a **rotational guide** because it ensures that the wheel will keep moving in a circle But stay in place. Type of link between forks and axle?

The bolts are removable, indirect, and rigid. Since the linked wheels rotate while the forks do not, the link is partial.



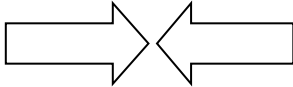

The helical (or helicoidal) guide ensures that the adjustable screw and cap (*non removable link*) move in a straight line. Since screw threads are needed inside the guide, it's why we call it helical.

p. 175 yellow book; p. 387 textbook

39. Constraints

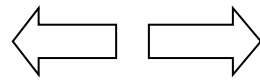
Materials have to be able to withstand various constraints.

A constraint describes the effect of external forces on a material.

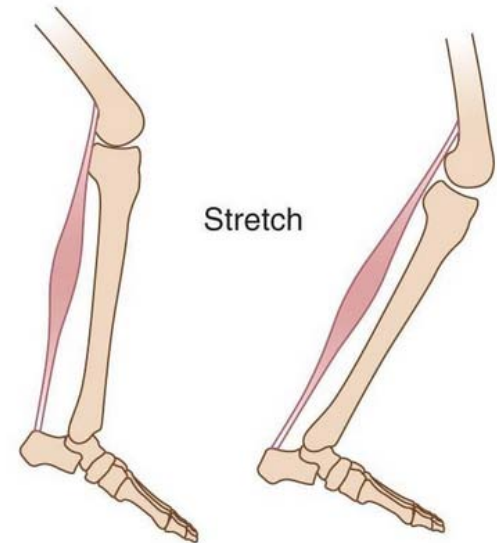
Type of constraint	Description of forces	Symbol (choose from above)	Examples
Compression	Crushing		<p>Crushing scrapped cars Crushing aluminum cans Garbage truck compression</p> 

Tension

Stretching
Deflection



Stretching muscle;
Stretching wire
Pulling on a chain

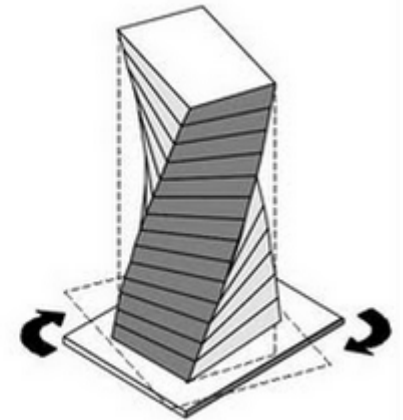
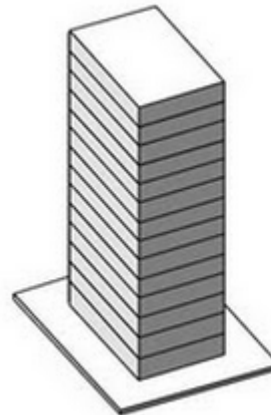


Torsion

Twisting

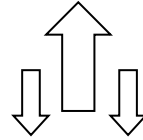


Earthquake's stress on buildings
Squeezing water out of rag



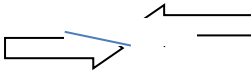
Deflection

Bending



Skis;
Bending a fishing pole



Shearing	Cutting	 A diagram showing two horizontal arrows. The left arrow points to the right and has a blue arrowhead. The right arrow points to the left and has a black arrowhead.	Cutting paper; cutting thin sheet of metal; a secondary consumer attacking neck of prey
----------	---------	--	---

