Housekeeping

- Disc Worksheet reading!
- Tuesday
  - PL HW 14
  - Quiz 4 starts!
- Thursday
  - ME HW 15
- Saturday
  - Quiz 4 ends
- Sunday
  - WA 8
Frames and machines

The members can be truss elements, beams, pulleys, cables, and other components. The general solution method is the same:

1. Separate system, ID & external loads
2. Check for 2FM’s
3. Separate system into parts & use action-reaction convention for “internal” forces
4. Solve
**Given:** The wall crane supports an external load of 700 lb.

**Find:** The force in the cable at winch motor W and the horizontal and vertical components of pin reactions at A, B, C, and D.

\[ \text{NOT forces on the pins!} \]
Determine the horizontal and vertical components of force at pins A and D.
If a 100 N force is applied to the handles of the pliers, determine the clamping force exerted on the smooth pipe B and the magnitude of the resultant force that one of the members exerts on pin A.
The pumping unit is used to recover oil. Determine the torque $\mathbf{M}$ which must be exerted by the motor in order to overcome this load.
Assuming the blades are pin connected at $B$ and the surface at $D$ is smooth, determine the normal force on the fingernail when a force of 1 lb is applied to the handles as shown.