**Learning Objectives:**

1. Define the significance of hartnell governor
2. Identify the parts of a hartnell governor such as ball, spindle, bell crank lever, sleeve, roller and spring
3. Derive governing equation of the hartnell governor
4. Observe the variation in bell crank lever, sleeve, roller, and spring due to change in rotational speed.

**Theory:**

Governors, in general, are most useful means of controlling or regulating the speed of an engine based on varying levels of the load at the output. They are used in regulating the speed of the engine, which takes to the fact that the fuel injected is based on the speed variations seen along the shafts.[1]

Hartnell governor is spring controlled governor. Two bell crank levers, each carrying a ball at one end and a roller on the other end. The roller fit into a groove in the sleeve.[2] The frame is attached to the governor spindle and hence rotates with it. A helical spring in compression provides equal downward forces on the two rollers through a collar on the sleeve.[2] With increase in speed, radius of rotation of balls increases and rollers lift the sleeve against the spring force. With decrease in speed, sleeve move downwards with the spring force. The movement of this sleeve is transferred to throttle valve.[1]