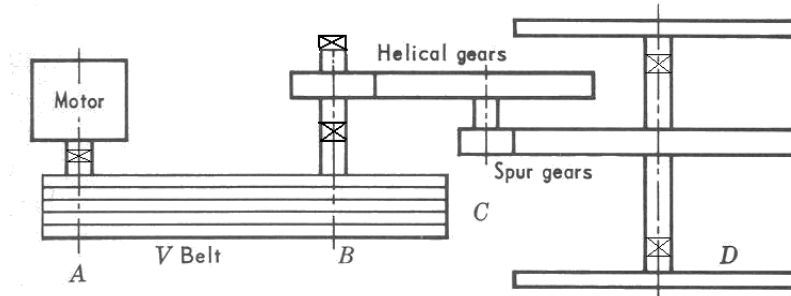


Term Project: Design of Escalator Drive Unit

The drive for an escalator shown in the below figure, is composed of a V-belt speed reduction, a helical-gear reduction, a spur gear reduction and some bearings as main components.



Assuming the data given below;

Torque on shaft D: 6100 ft-lb

Speed reduction: V-belt: 5:1

Helical gears: 4.2:1

Spur gears: 4.2:1

Mechanical efficiency: 88%

- Determine the class of induction motor and its horsepower to be specified.
- Design and calculate the gears.
- Calculate and select appropriate bearings for 5 years life and 12 hours work per day.
- Calculate and select appropriate belts.
- Design and calculate shafts with suitable diameter in along axis (shape design).
- Design and locate a brake system. Do you have any idea which shaft is appropriate for the brake location?
- Draw the exact CAD drawing of machine elements and assembled machine.
- *Select and design appropriate couplings and joints.*
- *Use Tolerances as it is needed.*

Deadline for submission: Final Exam day.



"You cannot teach a man anything, you can only help him find it within himself."

Galileo Galilei