

1.9 In Fig. 1.69, find the equivalent spring constant of the system in the direction of θ .

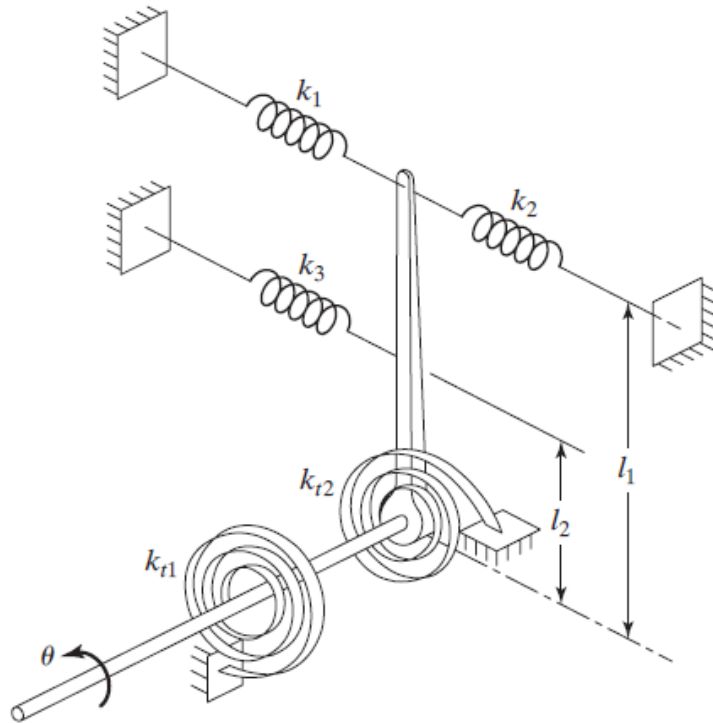


FIGURE 1.69

1.20 Figure 1.76 shows a uniform rigid bar of mass m that is pivoted at point O and connected by springs of stiffnesses k_1 and k_2 . Considering a small angular displacement θ of the rigid bar about the point O , determine the equivalent spring constant associated with the restoring moment.

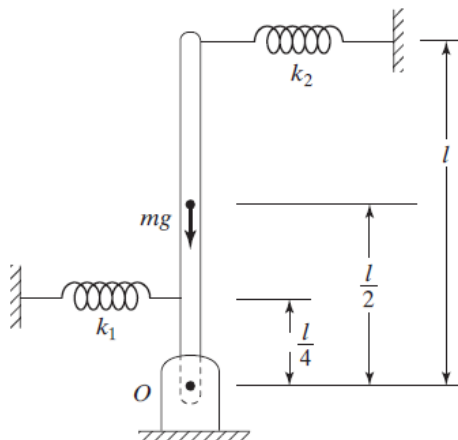


FIGURE 1.76 Rigid bar connected by springs.

- 1.22 An oil drum of diameter d and mass m floats in a bath of sea water of density ρ_w as shown in Fig. 1.78. Considering a small displacement x of the oil drum from its static equilibrium position, determine the equivalent spring constant associated with the restoring force.

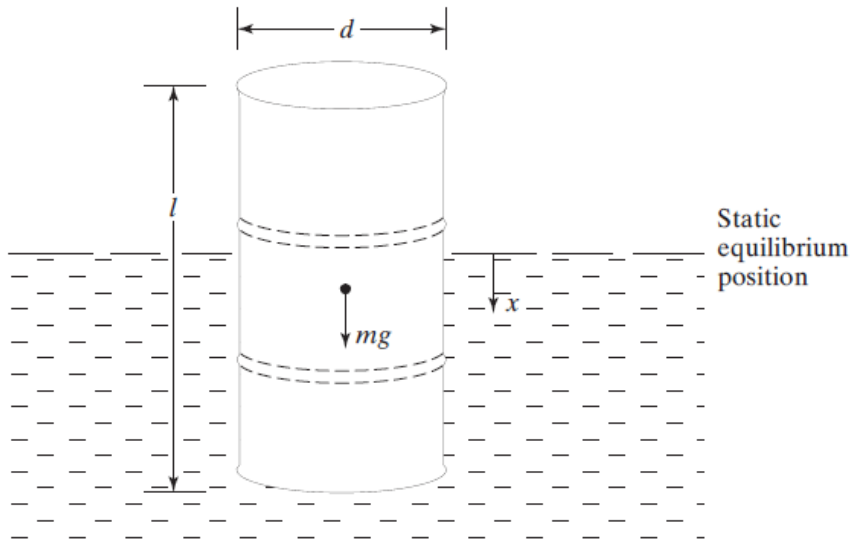


FIGURE 1.78 Oil drum floating in sea water.

- 1.49 In Fig. 1.96 find the equivalent mass of the rocker arm assembly with respect to the x coordinate.

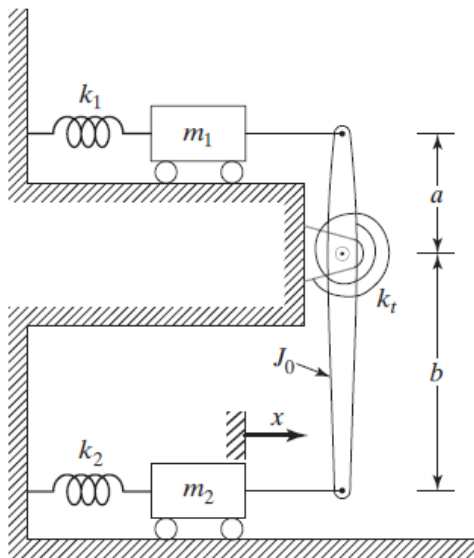


FIGURE 1.96 Rocker arm assembly.