

**FIGURE 3-33**

Approximate constant velocity, draglink driven slider-crank sixbar mechanism⁽²²⁾

- 6-68 Figure 3-33 shows a sixbar slider crank linkage. Find all its instant centers in the position shown.
- †6-69 Calculate and plot the centroids of instant center I_{24} of the linkage in Figure 3-33 so that a pair of noncircular gears can be made to replace the driver dyad 23.
- 6-70 Find the velocity of the slider in Figure 3-33 for the position shown if $\theta_2 = 110^\circ$ with respect to the global X -axis assuming $\omega_2 = 1$ rad/sec CW.
- Using a graphical method.
 - Using the method of instant centers.
 - Using an analytical method.
- †6-71 Write a computer program or use an equation solver such as *Mathcad*, *Matlab*, or *TKSolver* to calculate and plot the angular velocity of link 4 and the linear velocity of slider 6 in the sixbar slider crank linkage of Figure 3-33 as a function of the angle of input link 2 for a constant $\omega_2 = 1$ rad/sec CW. Plot V_C both as a function of θ_2 and separately as a function of slider position as shown in the figure. What is the percent deviation from constant velocity over $240^\circ < \theta_2 < 270^\circ$ and over $190^\circ < \theta_2 < 315^\circ$.

† These problems are suited to solution using *Mathcad*, *Matlab*, or *TKSolver* equation solver programs.