



**FIGURE P7-16**

Problem 7-46 Walking-beam indexer with pick-and-place mechanism Adapted from P. H. Hill and W. P. Rule. (1960). *Mechanisms: Analysis and Design*, with permission

†7-46 Figure P7-16 shows a walking-beam indexing and pick-and-place mechanism which can be analyzed as two fourbar linkages driven by a common crank. The link lengths are given in the figure. Angle  $CO_6E = 75^\circ$ .  $O_2O_6$  is at  $205^\circ$ . The phase angle between the two crankpins on gear 2 is  $120^\circ$ . The product cylinders being pushed have 60-mm diameters. The point of contact between the left vertical finger and the leftmost cylinder in the position shown is 58 mm at  $80^\circ$  versus the left end of the parallelogram's coupler (point D). Calculate and plot the relative acceleration between points E and P for one revolution of gear 2.

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