Kuratowski’s Theorem states that a graph is planar if and only if it has no minor that is isomorphic to $K_{3,3}$ or $K_5$. Mayhew, Royle and Whittle characterize internally 4-connected binary matroids with no $M(K_{3,3})$-minor. Oxley characterizes 3-connected binary matroids without any $P_9$- or $P^*_9$-minor. We first determine internally 4-connected binary matroids with no $P_9$-minor. Using this we characterize 3-connected binary matroids with no $P_9$-minor. (Received January 27, 2014)