Falling chimney

A chimney initially stands upright. It is given a tiny kick, and it topples over. At what point along its length is it most likely to break?

In doing this problem, work with the following two-dimensional simplified model of a chimney. Assume that the chimney consists of boards stacked on top of each other, and that each board is attached to the two adjacent ones with tiny rods at each end, as shown below. The goal is to determine which rod in the chimney has the maximum tension. (Work in the approximation where the width of the chimney is very small compared to the height.)