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The industrial crimping (small scale buckling) process is of great importance in modern synthetic fibre manufacture. Many physical properties are determined by the small scale structure, which makes handling of the fibre much easier. This paper will discuss a simple model for the so called ``stuffer box crimper'', the operation of which is of interest to the project's corporate sponsors, Courtaulds.

For the so called ``primary'' crimp we assume two dimensional motion and only consider a single fibre modelled as a smooth beam of increasing length being fed into a channel of small aspect ratio (height to length). This contact problem is found to have an interesting bifurcation structure as more fibre is fed in. A brief note will be made of secondary crimp wherein the fibre with small scale buckles itself bends over a longer scale.