

Geometric Synthesis of the Folding Bridge Mechanism

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Abstract: *In London there is a folding bridge composed of eight platforms articulated between them. One platform is fixed to base (a platform from one end). The platforms have the shape of isosceles trapezoid. When the bridge is folded the large bases of the trapezoids form an octagon. The driving mechanism of the bridge is composed by motor dyads (active RRTaR groups) and RRR dyads. For the eight platform bridge the maximum piston stroke is less than the platform height (trapeze height). In this case, the connections between the hydraulic cylinders and the other elements are usually made, i.e. at the ends of the cylinder. If we want to make a folding bridge with fewer moving platforms, there are situations when the piston stroke is greater than the height of the trapeze. In this case must be performed the geometrical synthesis of the mechanism such that the folded bridge forms desired geometric figures (square, pentagon etc.).*

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