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See application file for complete search history.

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(57) ABSTRACT

A shear force actuator is described, including: two substantially parallel first structural components disposed along a first axis; a plurality of substantially parallel second structural components disposed between and bridging the two first structural components; a plurality of joint sections each joining the second structural component with the first structural components at an oblique angle of between 0 and 90 degrees to define a plurality of cells, each capable of being connected with a fluid inflation or deflation source; an elastic surface covering the remaining surfaces of the cells in a fluid-tight manner, wherein at least one of the joint section, the first structural components, and the second structural components is elastic so that cell collapses upon removal of fluid from the cell to generate a linear force along the first axis.

29 Claims, 25 Drawing Sheets

