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(54) **ACTUATING DEVICE WITH AT LEAST THREE STABLE POSITIONS**

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(57) **ABSTRACT**

A mechanical actuating device for moving an aerodynamic or hydrodynamic surface includes plural flexure members confined in an elastically deformed condition. The flexure members are movable against the force generated by their elastic deformation to move the device into one of at least three stable positions, in which the device, and therefore the aerodynamic or hydrodynamic surface, are held by the force generated by elastic deformation of the flexure members. Since the flexure members are always elastically deformed, the device "snaps" between discrete, stable positions and is held firmly in each. In another embodiment more flexure members can be used to provide additional stable positions. In one application, the actuating device is used as a trailing edge tab for a helicopter or tiltrotor blade to reduce 1/rev vibrations. The device can be actuated manually or electrically using shape-memory alloy wires to snap the flexure members into their various stable positions.

14 Claims, 4 Drawing Sheets

