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James et al.

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(54) **BI-DIRECTIONAL ADJUSTABLE ENERGY DISSIPATING AND HEAD LOSS VALVE**

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(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 224 days.

(57) **ABSTRACT**

A bi-directional head loss valve with a valve body having a flow path along a flow axis and a transverse valve actuation axis, an actuation shaft housing and a guide shaft mount disposed in opposition along the transverse valve actuation axis. A fixed plate is housed within the valve body transverse the flow axis, with downstream orifices parallel to the flow axis and a mobile plate is housed within the valve body upstream of and parallel to the fixed plate, with upstream orifices parallel to the flow axis. The mobile plate is adapted to move along the transverse valve actuation axis: from a fully open position, wherein the upstream and downstream orifices are in flow communication; to a fully closed position, wherein the downstream orifices are blocked by the mobile plate. An actuation shaft along the transverse actuation axis is slidably housed within the actuation shaft housing, and has an inner end engaging the mobile plate and an outer end adapted to engage a valve actuator. A guide shaft along the transverse actuation axis has an inner end engaging the mobile plate and an outer end engaging the guide shaft mount. The guide shaft supports and guides the mobile plate during reverse flow and transient conditions.

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(58) **Field of Search** 137/625.33; 251/282, 251/326

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10 Claims, 2 Drawing Sheets

