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(12) **United States Patent**
Dille

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(54) **PINCH VALVE**

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Related U.S. Application Data

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(63) Continuation-in-part of application No. PCT/US03/09381, filed on Mar. 28, 2003.

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(57) **ABSTRACT**

(58) **Field of Classification Search** 137/486, 137/487.5; 251/4, 5, 6, 7, 8, 48, 227, 337
See application file for complete search history.

A control valve includes an elastomeric flow tube, a plunger having first and second ends, and a pinch member connected to the first end of the plunger. The pinch member is situated adjacent the flow tube. A reference surface is positioned generally opposite the pinch member such that the elastomeric tube is squeezable between the pinch member and the reference surface to control fluid flow through the flow tube. A first guide spring is situated between the pinch member and the first end of the plunger, and a second guide spring is situated adjacent the second end of the plunger. A damper may be connected to the plunger. Further, a pressure containing member may be situated about at least a portion of the flow tube.

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25 Claims, 8 Drawing Sheets

