



(12) **United States Patent**  
**Eskridge et al.**

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(54) **METHODS AND SYSTEMS FOR ENDOVASCULARLY CLIPPING AND REPAIRING LUMEN AND TISSUE DEFECTS**

(58) **Field of Classification Search**  
CPC ..... A61B 17/12109; A61B 17/12113  
(Continued)

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(56) **References Cited**

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U.S. PATENT DOCUMENTS

3,868,956 A 3/1975 Alfidi et al.  
4,164,045 A 8/1979 Bokros et al.  
(Continued)

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FOREIGN PATENT DOCUMENTS  
CN 1384726 12/2002  
CN 1399530 2/2003  
(Continued)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

OTHER PUBLICATIONS

(21) Appl. No.: **14/022,088**

Polytetrafluoroethylene Implants, DermNet NZ, Nov. 11, 2005, <http://dermetnz.org/polytetrafluoroethylene.html>.

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(Continued)

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**Related U.S. Application Data**

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(57) **ABSTRACT**

An implantable closure structure is delivered using minimally invasive techniques, and inhibits the migration of liquid and particulate matter from inside a physiological cavity or opening, such as an aneurysm or a septal defect, as well as inhibiting the flow of liquid and particulate matter, such as from an associated blood vessel or chamber, into the physiological cavity or opening. The device has a closure structure that covers the neck or opening of a cavity and has one or more anchoring structures for supporting and retaining the closure structure in place across the cavity or opening.

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(52) **U.S. Cl.**

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**29 Claims, 9 Drawing Sheets**

