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Brenneman

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(54) **DEVICE AND METHOD FOR ESTABLISHING AN ARTIFICIAL ARTERIO-VEINOUS FISTULA**

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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 0 days.

This patent is subject to a terminal disclaimer.

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CPC *A61B 17/11* (2013.01); *A61B 2017/00526* (2013.01); *A61B 2017/00862* (2013.01); *A61B 2017/1139* (2013.01)

(58) **Field of Classification Search**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,538,917 A 11/1970 Selker
3,675,656 A 7/1972 Hakim
3,730,186 A 5/1973 Edmunds, Jr. et al.
3,882,862 A 5/1975 Berend
4,586,501 A 5/1986 Claracq
4,601,718 A 7/1986 Possis et al.

(Continued)

FOREIGN PATENT DOCUMENTS

EP 1614400 A2 1/2006
EP 1470785 A1 10/2007

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 10/927,704, filed Aug. 27, 2004.

(Continued)

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(57) **ABSTRACT**

A shunt rivet for implantation in the aorta and inferior vena cava to treat chronic obstructive pulmonary disease, and a method of treating chronic obstructive pulmonary disease. The shunt rivet may be formed to have a central section, a proximal clinch section, and a distal clinch section each having one or more clinch members. These one or more clinch members may be trained to be resiliently biased to bend radially outwardly from the central section.

18 Claims, 7 Drawing Sheets

