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Kuzma et al.

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(54) **ELECTRODE ARRAY ASSEMBLY AND
METHOD OF MAKING SAME**

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Related U.S. Application Data

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11, 2005.

(51) **Int. Cl.**
H01R 43/00 (2006.01)
A61N 1/00 (2006.01)

(52) **U.S. Cl.**
USPC **29/825**; 607/116

(58) **Field of Classification Search**
USPC 29/825; 607/115–122
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,769,984 A * 11/1973 Muench 607/122
5,410,797 A * 5/1995 Steinke et al. 29/435
5,555,618 A * 9/1996 Winkler 29/825
6,055,456 A * 4/2000 Gerber 607/117
6,205,361 B1 * 3/2001 Kuzma et al. 607/116

6,216,045 B1 * 4/2001 Black et al. 607/122
6,249,708 B1 * 6/2001 Nelson et al. 607/122
6,551,302 B1 * 4/2003 Rosinko et al. 604/505
6,598,280 B1 * 7/2003 Giba et al. 29/447
6,909,918 B2 * 6/2005 Stypulkowski 607/117
7,047,081 B2 * 5/2006 Kuzma 607/115
7,184,840 B2 * 2/2007 Stolz et al. 607/122
2004/0024440 A1 * 2/2004 Cole 607/122
2004/0225175 A1 * 11/2004 Moody et al. 600/3

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 11/329,907, Official Communication mailed Nov. 17,
2008.

U.S. Appl. No. 11/329,907, Official Communication mailed Apr. 2,
2009.

U.S. Appl. No. 11/329,907, Official Communication mailed Jul. 1,
2009.

U.S. Appl. No. 11/329,907, Official Communication mailed Mar. 31,
2010.

U.S. Appl. No. 11/329,907, Notice of Allowance mailed Nov. 15,
2010.

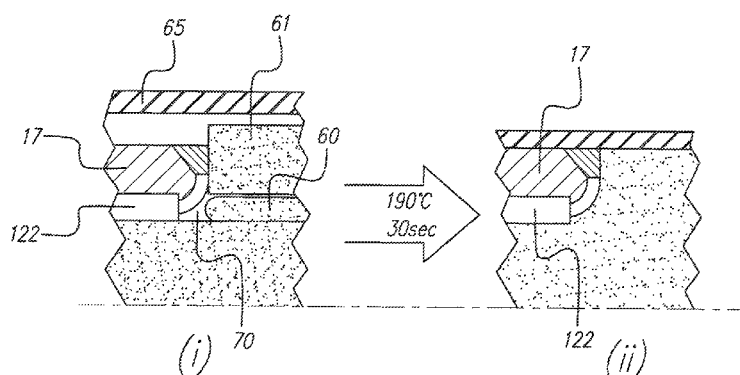
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(57) **ABSTRACT**

A method of manufacturing a stimulation lead includes providing a lead body having an insulation section that defines a central lumen extending along the insulation section and conductor lumens extending along the insulation section and arranged around, and external to, the central lumen. The lead body also includes conductive contacts located along an axial end of the lead body and conductor wires with each conductor wire disposed within one of the conductor lumens and each of the conductor lumens having at least one of the conductor wires disposed therein. After providing the lead body, conductively at least one of the conductor wires to each of the conductive contacts; and placing non-conductive material into a portion of at least one of the conductor lumens of the lead body. A portion of the conductor lumens and at least a portion of the non-conductive material are disposed radially beneath the conductive contacts.

11 Claims, 6 Drawing Sheets



Nevro Corp

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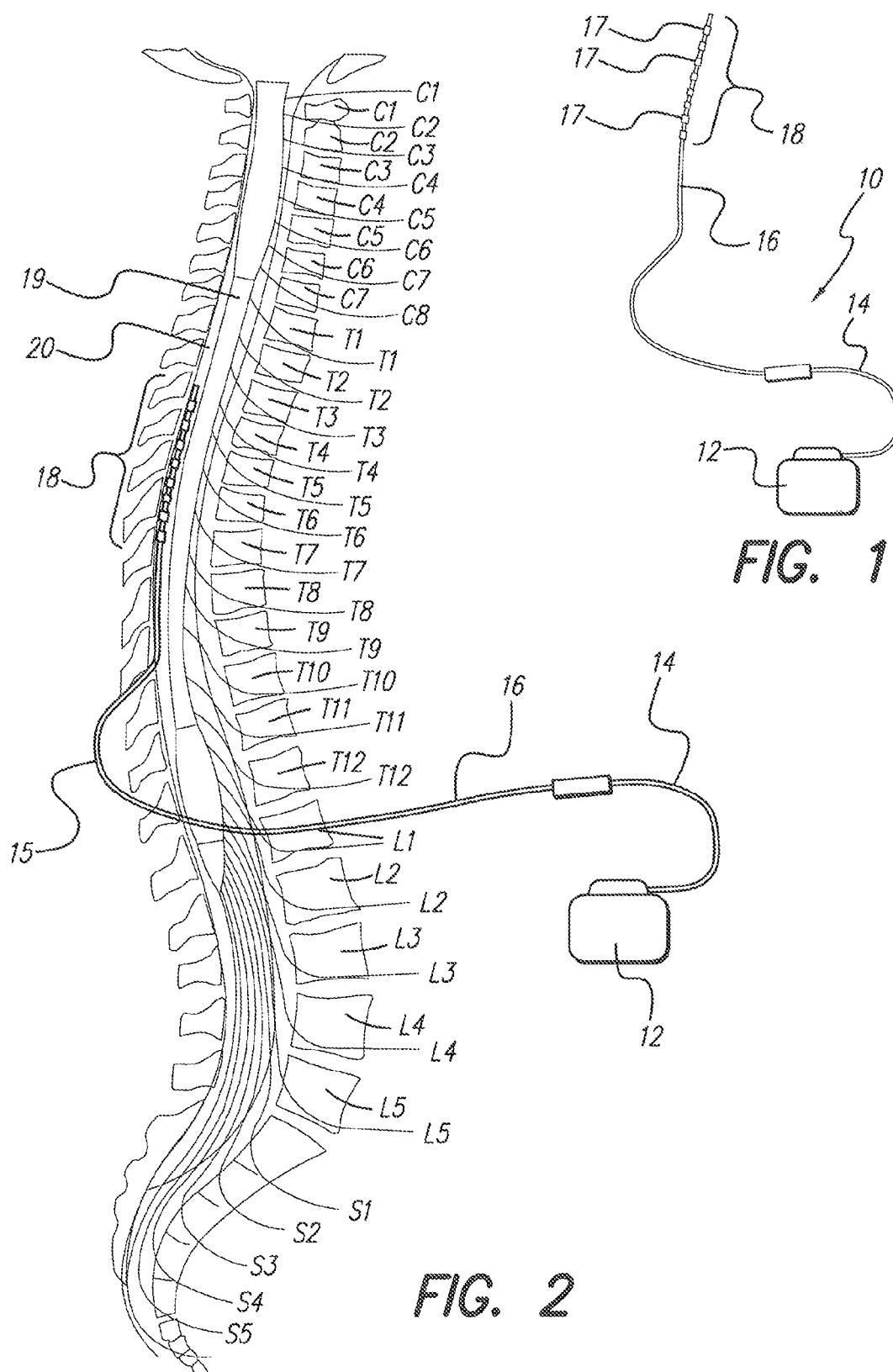
References Cited

U.S. PATENT DOCUMENTS

2005/0215945 A1* 9/2005 Harris et al. 604/66
 2006/0036218 A1* 2/2006 Goodson et al. 604/264
 2007/0021771 A1* 1/2007 Oepen et al. 606/194

2007/0021821 A1* 1/2007 Johnson et al. 623/1.11
 2007/0249997 A1* 10/2007 Goodson et al. 604/93.01
 2008/0097426 A1* 4/2008 Root et al. 606/41
 2009/0018487 A1* 1/2009 Doty 604/21

* cited by examiner



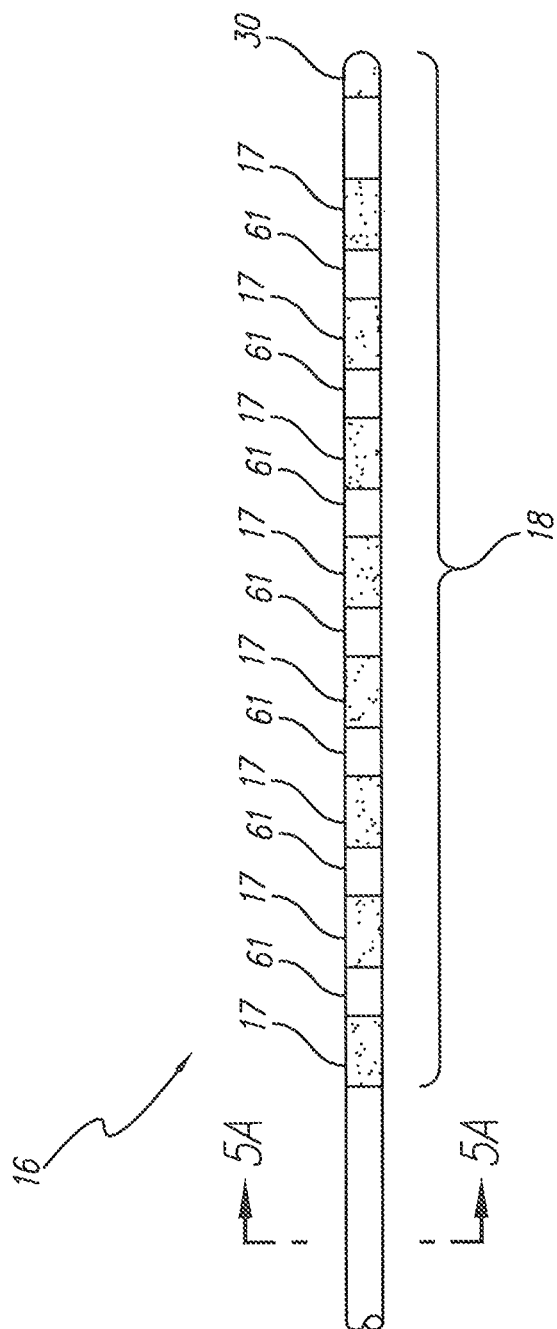


FIG. 3A

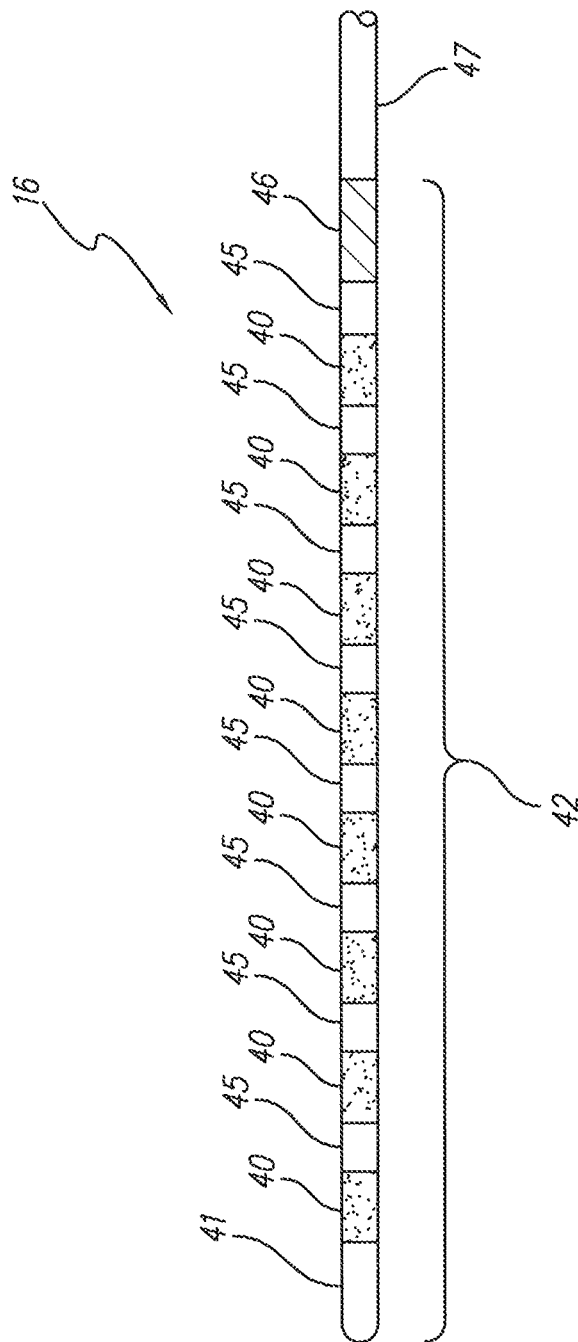


FIG. 3B

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