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(71) Applicant (for all designated States except US): THE  
CLEVELAND CLINIC FOUNDATION [US/US]; 9500  
Euclid Avenue, Cleveland, OH 44195 (US).

(72) Inventor: MUSCHLER, George, F.; 2270 Chatfield  
Drive, Cleveland Heights, OH 44106 (US).

(74) Agent: WESORICK, Richard, A.; Tarolli, Sundheim,  
Covell & Tummino L.L.P., 526 Superior Avenue, Suite  
1111, Cleveland, OH 44114 (US).

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(54) Title: APPARATUS AND METHOD FOR HARVESTING BONE MARROW

(57) Abstract: A minimally invasive apparatus and method for harvesting bone marrow cells, blood, and bone fragments includes a rigid cannula having a proximal end and a distal end with an opening. The distal end includes a cutting tip that is movable axially and radially to cut and disrupt bone tissue while preserving necessary viability among harvested marrow cells. The cannula further includes an inner surface defining an internal passage that extends from the opening toward the proximal end. Suction is applied to the passage to draw disrupted bone marrow cells, blood, and bone fragments into the internal passage for collection. The apparatus may include a rotatable shaft disposed co-axially within the internal passage. The shaft has a distal end with a cutting bit for further cutting and disrupting of bone tissue.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/09821

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : A61B 10/00 US CL : 600/565 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 600/565, 562, 563, 564, 568, 571; 606/79 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 5,913,859 A (Shapira) 22 June 1999 (22.06.1999), fig. 2, column 3/lines 61-67; column 4/lines 1-12, 45-49; column 6/lines 43-46, 50-56, 60-65; column 7/lines 5-7, 16-19; column 8/lines 38-56	46-51 ----- 38, 40-41, 54
X --- Y	US 5,575,293 A (Miller et al.) 19 November 1996 (19.11.1996), fig. 5, column 7/lines 31-46)	1-5, 7 ----- 11, 21, 25, 28
X --- Y	US 2003/0055373 A1 (Sramek et al.) 20 March 2003 (20.03.2003), figs. 1A-E; par 0071, at lines 2-8; par 0072, at lines 6-11; par 0073, at lines 1-3, 7-12, 16-21; par 0074, at lines 3-9; par 0075, at lines 11-14; par 0077, at lines 1-9; par 0080, at lines 1-13; par 0081, at lines 1-11; par 0082, at lines 1-3	37, 39, 42, 44 ----- 38, 40-41, 43, 45
X --- Y	US 6,132,448 A (Perez et al.) 17 October 2000 (17.10.2000), figs. 1-2 & 5-6, column 2/lines 30-38, 47-53, 56-67, column 3/lines 16-19, 31-35, 47-54, column 4/lines 1-12	1-3, 5-6, 8-10, 12-20, 22-24, 26-27, 29-36 ----- 11, 21, 25, 28, 45, 54
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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0042581 A1 (Cervi) 11 April 2002 (11.04.2002), fig. 4B; par 0044, at lines 3-12; par 0050, at lines 1-3; par 0058, at lines 1-6; par 0062; par 0064, at lines 1-8, 12-13; par 0065; par 0066, at lines 1-7; par 0067, at lines 1-6	46, 51, 53
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Y		52
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Y		43, 52