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Lieberman

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(54) **APPARATUS FOR DEPOSITING BONE GRAFTING MATERIAL**

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(52) **U.S. Cl.** **606/93**

(58) **Field of Classification Search** 606/92-94
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,994,065 A 2/1991 Gibbs et al.
5,638,997 A * 6/1997 Hawkins et al. 222/391
6,367,962 B1 * 4/2002 Mizutani et al. 366/189

6,582,446 B1 6/2003 Marchosky
6,599,293 B2 * 7/2003 Tague et al. 606/94
2002/0092871 A1 7/2002 Rickard et al.
2003/0036762 A1 2/2003 Kerr et al.
2004/0024409 A1 2/2004 Sand et al.
2004/0030345 A1 2/2004 Aurin et al.

FOREIGN PATENT DOCUMENTS

DE 201 18 100 U1 2/2003
FR 2 690 332 A1 10/1993
FR 2 829 690 A1 3/2003
JP 07 313586 12/1995

* cited by examiner

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(57) **ABSTRACT**

An apparatus for depositing bone graft material into a mammalian body comprises a barrel member having an inner surface with internal threads. The barrel includes an exit port through which bone graft material placed into the barrel exits the barrel. A plunger member is disposed coaxially within the barrel member for pushing the bone graft material toward the exit port in the barrel. A mechanism is provided for advancing the plunger member within the barrel member. The plunger member can be rotatable and include external threads that are complimentary to and engaged with the internal threads in the barrel member to assist in moving the bone graft material toward the exit port in the barrel.

5 Claims, 2 Drawing Sheets

