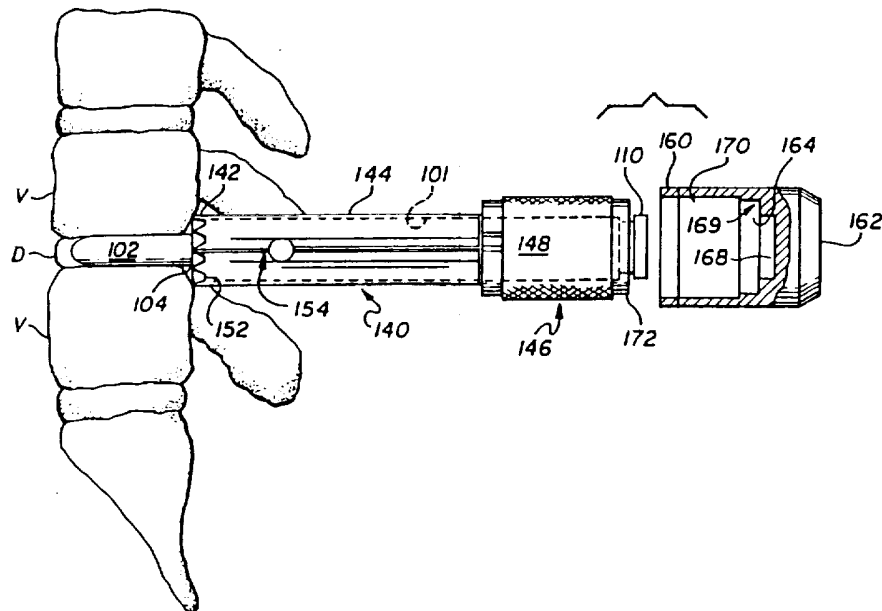




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification<sup>5</sup>: A61B 17/56, A61F 2/32, 5/00, B67B 7/04</p>	<p>A3</p>	<p>(11) International Publication Number: <b>WO 94/28824</b> (43) International Publication Date: 22 December 1994 (22.12.94)</p>
<p>(21) International Application Number: PCT/US94/06345 (22) International Filing Date: 9 June 1994 (09.06.94) (30) Priority Data: 08/074,781 10 June 1993 (10.06.93) US (71) Applicant: KARLIN TECHNOLOGY, INC. [US/US]; 4929 Premiere Avenue, Lakewood, CA 90712 (US). (72) Inventor: MICHELSON, Gary, Karlin; 438 Sherman Canal, Venice, CA 90291 (US). (74) Agent: SCHELLIN, Eric, P.; Suite 704, 2121 Crystal Drive, Arlington, VA 22202 (US).</p>	<p>(81) Designated States: AU, BB, BG, BR, BY, CA, CN, CZ, FI, HU, JP, KP, KR, KZ, LK, LV, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>  (88) Date of publication of the international search report: 16 March 1995 (16.03.95)</p>	

(54) Title: APPARATUS AND METHOD OF INSERTING SPINAL IMPLANTS



(57) Abstract

An apparatus and a method of inserting spinal implants is disclosed in which an intervertebral space is first distracted, a hollow sleeve (140) having teeth (142) at one end is then driven into the vertebra adjacent the disc space. A drill (240) is then passed through the hollow sleeve (242) removing disc and bone in preparation for receiving the spinal implant (1) which is then inserted through the sleeve (140).

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INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US94/06345

A. CLASSIFICATION OF SUBJECT MATTER

IPC(5) : A61B 17/56; A61F 2/32, 5/00; B67B 7/04  
US CL : 81/3.45; 606/60, 61, 86, 90, 99, 100; 623/16, 17  
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 81/3.45; 606/60, 61, 79, 80, 86-88, 90, 96-100; 623/16, 17

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 4,142,517, (STAVROPOULOS ET AL.), 06 March 1979. See the entire document.	1-7, 9, 11, 12, 30-32
X	US, A, 5,055,104, (RAY), 08 October 1991. See the entire document.	20-24
X	US, A, 4,961,740, (RAY ET AL.), 09 October 1990. See the entire document.	25, 26
Y	US, A, 2,842,131, (G. W. SMITH), 08 July 1958. See Figs. 2 and 3.	27-29
X	US, A, 4,830,000, (SHUTT), 16 May 1989. See the entire document.	33
X	US, A, 4,943,291, (TANGUY), 24 July 1990. See the entire document.	34

Further documents are listed in the continuation of Box C.  See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be part of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
08 DECEMBER 1994

Date of mailing of the international search report  
**13 FEB 1995**

Name and mailing address of the ISA/US  
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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US94/06345

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, A, 4,878,915, (BRANTIGAN), 07 November 1989. See the entire document.	37-41
X	US, A, 4,677,883, (LEE), 07 July 1987. See the entire document.	95-97

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US94/06345

**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US94/06345

## BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

- I. Claims 1-10 and 30-32 are drawn to an apparatus for use in performing surgery for fusing vertebrae, classified in Class 606/61.
- II. Claims 11-19 are drawn to a spinal distractor, classified in Class 606/90.
- III. Claims 20-24 are drawn to an apparatus for use in performing surgery, classified in Class 606/86.
- IV. Claims 25 and 26 are drawn to a spinal removing device, classified in Class 606/99.
- V. Claims 27-29 are drawn to a drilling member classified in Class 606/80.
- VI. Claim 33 is drawn to a combined distractor and drill, classified in Class 606/79.
- VII. Claim 34 is drawn to an apparatus for use in spinal surgery, classified in Class 606/61.
- VIII. Claims 35-37 are drawn to an implant loading device, classified in Class 606/100.
- IX. Claims 38-41 are drawn to an implant/removal insertion device, classified in Class 606/104.
- X. Claims 42-94 are drawn to a method for inserting a spinal implant, classified in Class 128/898.
- XI. Claims 95-97 are drawn to a corkscrew, classified in Class 294/121.
- XII. Claims 98-106 are drawn to an implant device and a method of use, classified in Class 606/60.
- XIII. Claim 102 is drawn to a driver cap, classified in Class 606/72.