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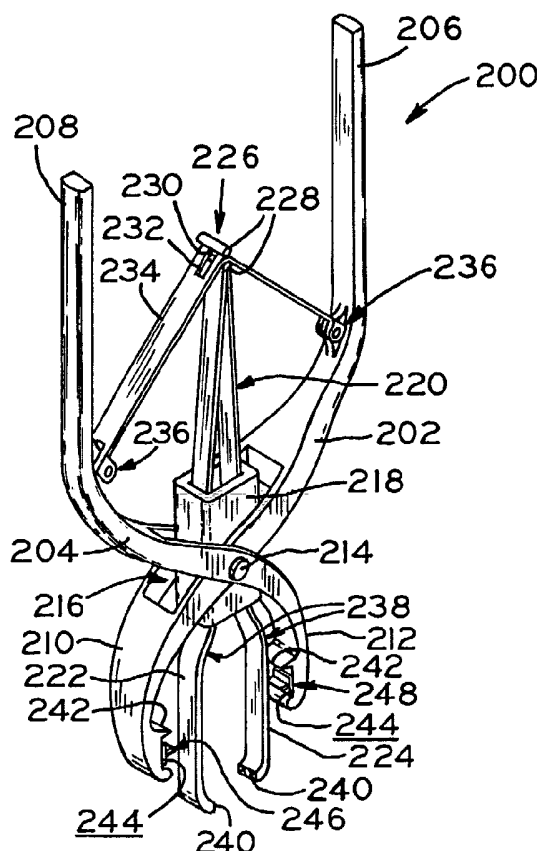
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[Continued on next page]

(54) Title: SKIN LESION EXCISER AND SKIN-CLOSURE DEVICE THEREFOR



(57) Abstract: A skin lesion exciser including a moving blade, wherein excision of a skin lesion placed in proximity to the blade is effected by movement of the blade against the skin, a moving engagement portion, wherein the blade and the engagement portion have coincident movement, and a skin-closure device having an open condition prior to excision of the skin lesion, and a closed conditions in which the device holds the skin closed after excision of the skin lesion. The device is in engagement with the engagement portion during movement of the blade, and the device is moved from its open to its closed condition in response to movement of the engagement portion. The excision of the skin lesion and the closure of the skin are substantially simultaneous. The present invention also provides a method for excising a skin lesion including: positioning a skin lesion above a moving blade; slicing the lesion from the skin with the blade; and substantially simultaneously with excision of the lesion, closing the skin beneath the moving blade. The present invention also provides a skin-closure device which may be used in conjunction with an inventive exciser.



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INTERNATIONAL SEARCH REPORT

Int. Application No.

PCT/US 02/31037

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61B17/32 A61B17/068 A61B17/064

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)

IPC 7 A61B

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 practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 219 354 A (CHOUDHURY VIJAY K ET AL) 15 June 1993 (1993-06-15) column 3, line 10 - line 26; figures ---	1-12, 32-41,50
A	US 5 209 755 A (ABRAHAN STELLA ET AL) 11 May 1993 (1993-05-11) the whole document ---	1-12, 32-41,50
X	EP 0 092 383 A (ETHICON INC) 26 October 1983 (1983-10-26) the whole document ---	44-46
A	DE 31 11 996 A (LEE GEORGE S ;SAMUELS PETER B (DE)) 14 October 1982 (1982-10-14) figures 1,5,6,8 ---	1-12, 32-41,50
X	---	44-46
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search

14 March 2003

Date of mailing of the international search report

31.03.03

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INTERNATIONAL SEARCH REPORT

International Application No

Pat. No. US 02/31037

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 4 610 251 A (KUMAR SARBJEET S) 9 September 1986 (1986-09-09) figures 1-6 ---	44-46
X	US 4 467 805 A (FUKUDA MAMORU) 28 August 1984 (1984-08-28) column 8, line 30 - line 61; figures 8-10,15-17 ---	44-49
X	US 4 976 909 A (POPADIUK NICHOLAS M ET AL) 11 December 1990 (1990-12-11) figures 1-3 ---	47-49
X	WO 95 34245 A (UNIV MASSACHUSETTS MEDICAL) 21 December 1995 (1995-12-21) the whole document -----	47-49

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 02/31037

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

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

1. ☒ Claims Nos.: 13-31, 42, 43
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
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:

see additional 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.

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 50, 1-12, 32-41

PROBLEM : combined skin lesion exciser with skin closure device; SOLUTION : means for excising the skin lesion from the skin with said blade and closing the skin with said device during movement of said blade;

2. Claims: 44-46

PROBLEM : structure of a skin closure device; SOLUTION : each of said legs being provided with at least one skin-piercing pin which extends toward the other said leg;

3. Claims: 47-49

PROBLEM : alternative structure of a skin closure device; SOLUTION : first and second separate halves, said halves having means for interfitting with each other without said interfitting means piercing the skin; said device having a first, open condition in which said halves are less than fully engaged with each other; and a second, closed condition in which said halves are fully engaged with each other and retained together; and wherein at least one of said halves includes means for retaining said device to the skin without interconnecting said first and second halves.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/31037

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5219354	A	15-06-1993	IN 177831 A1 GB 2233903 A ,B	22-02-1997 23-01-1991
US 5209755	A	11-05-1993	NONE	
EP 0092383	A	26-10-1983	AT 31011 T AU 1351983 A BR 8301917 A CA 1200454 A1 DE 3374654 D1 DK 103483 A EP 0092383 A2 ES 276322 U ES 8407384 A1 JP 1718249 C JP 4005455 B JP 58188440 A ZA 8302640 A	15-12-1987 20-10-1983 20-12-1983 11-02-1986 07-01-1988 16-10-1983 26-10-1983 16-07-1984 16-12-1984 14-12-1992 31-01-1992 02-11-1983 28-11-1984
DE 3111996	A	14-10-1982	DE 3111996 A1	14-10-1982
US 4610251	A	09-09-1986	NONE	
US 4467805	A	28-08-1984	NONE	
US 4976909	A	11-12-1990	US 4671280 A CA 1278485 A1 DE 3686350 D1 DE 3686350 T2 EP 0202090 A2 JP 2693420 B2 JP 61293445 A	09-06-1987 02-01-1991 17-09-1992 25-03-1993 20-11-1986 24-12-1997 24-12-1986
WO 9534245	A	21-12-1995	AU 2818895 A WO 9534245 A1	05-01-1996 21-12-1995