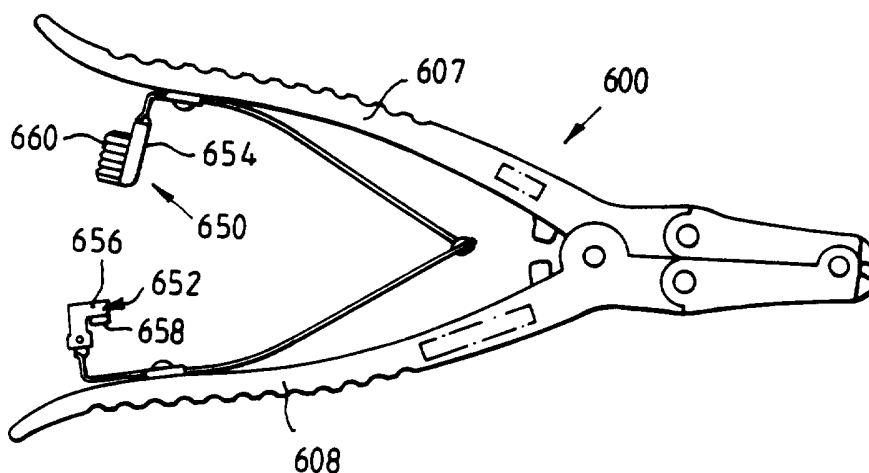




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁵ : B25B 27/14, A61B 17/56, 17/28</p>	<p>A3</p>	<p>(11) International Publication Number: WO 93/15880</p> <p>(43) International Publication Date: 19 August 1993 (19.08.93)</p>						
<p>(21) International Application Number: PCT/GB93/00262</p> <p>(22) International Filing Date: 8 February 1993 (08.02.93)</p> <p>(30) Priority data:</p> <table border="0"> <tr> <td>9202635.0</td> <td>7 February 1992 (07.02.92)</td> <td>GB</td> </tr> <tr> <td>9212150.8</td> <td>9 June 1992 (09.06.92)</td> <td>GB</td> </tr> </table> <p>(71) Applicant (for all designated States except US): HILLWAY SURGICAL LIMITED [GB/GB]; 49 Hillway, Highgate, London N6 6AD (GB).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only) : CROCKARD, Alan [GB/GB]; 49 Hillway, Highgate, London N6 6AD (GB). MELLOUL, Raphael [US/US]; LUGO, Brenda [US/US]; Codman & Shurtleff, Inc., 41 Pacella Park Drive, Randolph, MA 02368-1794 (US).</p>		9202635.0	7 February 1992 (07.02.92)	GB	9212150.8	9 June 1992 (09.06.92)	GB	<p>(74) Agent: HARLAND, Linda, Jane; Reddie & Grose, 16 Theobalds Road, London WC1X 8PL (GB).</p> <p>(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>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></p> <p>(88) Date of publication of the international search report: 25 November 1993 (25.11.93)</p>
9202635.0	7 February 1992 (07.02.92)	GB						
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(54) Title: CRIMPER**(57) Abstract**

A crimp tool for deforming a crimp tube (10) around wires used in surgical procedures has a pair of relatively long handles (107, 108) pivotal about a rear pivot axis (106). Each handle extends forwardly of the rear pivot axis (106) to form a rear jaw member (101a, 101b). The handles have co-operating cam surfaces formed thereon so that when the handles are pivoted towards one another, the free ends of the rear jaw members move apart. The free ends of the rear jaw members (101a, 101b) each carry an intermediate pivot (103, 104). Forward jaw members (111, 112) are pivotable about the intermediate pivot (103, 104) and are pivotable about a common forward pivot axis (110). The forward jaw members (111, 112) extend forwardly of the forward pivot axis (110) so that the forward end portions thereof may engage the crimp tube to deform it. The length of the handles (107, 108) is substantially greater than the length of the rear jaw members (101a, 101b) and the length of the forward jaw members (111, 112) is substantially greater than the length of the forward end portions thereof. Consequently, the compressive force applied by the forward end portions of the forward jaw members is substantially greater than the compressive force applied by a user to the handles (107, 108). A latching ratchet system prevents interruption of the crimping operation before an adjustable completion state. Alternatively, a visual indicator gives information concerning the pressure exerted.

INTERNATIONAL SEARCH REPORT

International Application No **PCT/GB 93/00262**

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC Int.C1.5 B 25 B 27/14 A 61 B 17/56 A 61 B 17/28		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.C1.5	B 25 B	A 61 B
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ^o	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	DE,C,3319149 (LEIBINGER) 13 December 1984	1
Y	see column 5, paragraph 1; figure 1 ---	2,3
Y	BE,A, 888258 (PEEVER) 31 July 1981	2,3
A	see claims 1,2; figures 2,3 ---	4
A	FR,A, 444847 (FODOR) 26 October 1912 see page 1, column 1, paragraph 1; figure 1 --- -/-	1
<p>^o Special categories of cited documents : ¹⁰</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"A" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
15-06-1993	28. 10. 93	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE		

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	US,A,4966600 (SONGER) 30 October 1990 cited in the application see figure 1 ---	1
A	US,A,4462403 (MARTIN) 31 July 1984 -----	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB93/00262

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.:
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:

For further information see Form PCT/ISA/206 sent on 12.08.93.

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.:

1-5

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

GB 9300262
SA 70647

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 06/10/93. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-C- 3319149	13-12-84	JP-A- 60034437 US-A- 4587963	22-02-85 13-05-86
BE-A- 888258	31-07-81	None	
FR-A- 444847		None	
US-A- 4966600	30-10-90	US-A- 5116340	26-05-92
US-A- 4462403	31-07-84	None	

EPO FORM P0479

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82