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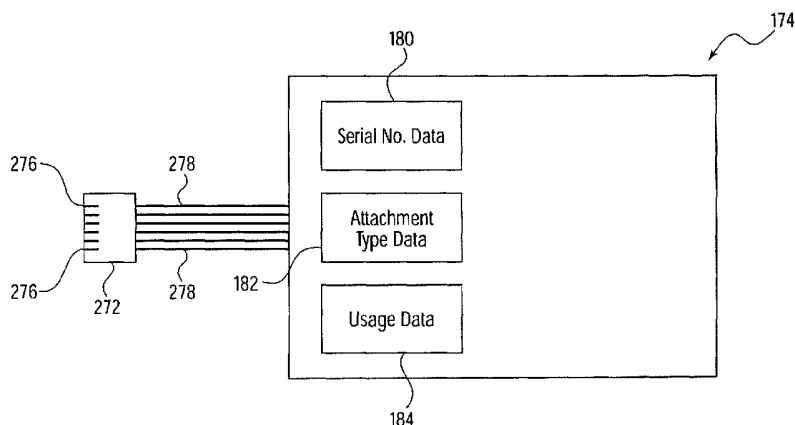
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- (71) Applicant: **POWER MEDICAL INTERVENTIONS, INC.** [US/US]; 110 Union Square Drive, New Hope, PA 18938 (US).
- (72) Inventors: **WHITMAN, Michael, P.**; 16 Pheasant Run, New Hope, PA 18938 (US). **DORROS, Gerald**; 25933 North 108th Place, Scottsdale, AZ 85255 (US). **BURBANK, John, E.**; 106 Haviland Road, Ridgefield, CT 06877 (US). **ZEICHNER, David, A.**; 7 Wychwood Lane, Oxford, CT 06478 (US).
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[Continued on next page]

(54) Title: ELECTRO-MECHANICAL SURGICAL DEVICE WITH DATA MEMORY UNIT



(57) Abstract: An electro-mechanical surgical device includes: a housing; an elongated shaft extending from the housing, a distal end of the elongated shaft being detachably coupleable to a surgical instrument; at least two axially rotatable drive shafts disposed within the elongated shaft, a distal end of each of the drive shafts being configured to couple with the surgical instrument; a steering cable arrangement, the steering cable arrangement being configured to steer the distal end of the elongated shaft; and a motor system disposed within the housing, the motor system being configured to drive the drive shafts and the steering cable arrangement. A control system may be provided for controlling the motor system. A remote control unit may also be provided for controlling the elements of the surgical instrument based on the detected rotation of the drive shafts. A memory unit stores a plurality of operating programs or algorithms, each corresponding to a type of surgical instrument attachable to the electro-mechanical surgical device. The control system reads or selects from the plurality of operating programs or algorithms, the operating program or algorithm corresponding to the type of surgical instrument attached to the electro-mechanical surgical device.



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

Int. Application No  
PCT/US 02/18381

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A61B17/00

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. |
|------------|---|-----------------------|
| X          | US 5 400 267 A (WELLER III ALBERT E ET AL) 21 March 1995 (1995-03-21)<br>the whole document<br>---            | 1-32                  |
| X          | US 5 651 780 A (STERN ROGER A ET AL) 29 July 1997 (1997-07-29)<br>column 6, line 55 -column 7, line 50<br>--- | 1-32                  |
| X          | WO 98 14129 A (MINNESOTA MINING & MFG) 9 April 1998 (1998-04-09)<br>the whole document<br>---                 | 1-32                  |
| X          | US 6 017 354 A (CULP JERRY A ET AL) 25 January 2000 (2000-01-25)<br>the whole document<br>---<br>-/--         | 1-32                  |

☒ 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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"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

"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

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Bridge, S

## INTERNATIONAL SEARCH REPORT

International Application No

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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          | EP 0 634 144 A (ETHICON INC)<br>18 January 1995 (1995-01-18)<br>column 9, line 57 -column 10, line 17<br>column 6, line 27 - line 54; figure 10<br>--- | 33-63,76              |
| X          | US 6 119 913 A (MAIN LAUREN O ET AL)<br>19 September 2000 (2000-09-19)   | 33-44                 |
| A          | column 6, line 15 -column 11, line 14<br>---   | 45-63,76              |
| X          | US 5 993 454 A (LONGO PAUL T)<br>30 November 1999 (1999-11-30)   | 33-35                 |
| A          | the whole document<br>---  | 45-63,76              |
| X          | WO 99 58076 A (SCHMID HERIBERT)<br>18 November 1999 (1999-11-18)   | 33-35                 |
| A          | page 1, paragraph 1 -page 2, paragraph 1<br>-----  | 45-63,76              |

# INTERNATIONAL SEARCH REPORT

national application No.  
PCT/US 02/18381

## 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.: 64-75, 77  
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.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. Claims: 1-32

PROBLEM : store and access data representing at least one parameter relating to a surgical instrument; SOLUTION : a memory unit configured to store data representing at least one parameter and a coupling including a data connector configured to connect to the memory unit;

2. Claims: 33-44

PROBLEM : driving an electro-mechanical surgical device; SOLUTION : at least one rotatable drive shaft, a motor and a gear arrangement for converting a high-speed rotation of the rotatable drive shaft to drive least one driven element at a high-torque;

3. Claims: 45-63 and claim 76 insofar as it involves two orifices

PROBLEM : a surgical device; SOLUTION : an elongated shaft having a first coupling; and a surgical instrument having a second coupling, the second coupling being complimentary to and configured to couple with the first coupling; wherein the elongated shaft is configured to be inserted into a body via a first orifice and the surgical instrument is configured to be inserted into the body via a second orifice; and wherein the elongated shaft is configured to be coupled with the surgical instrument via the first coupling and the second coupling after the elongated shaft is inserted into the body via the first orifice and after the surgical instrument is inserted into the body via the second orifice;

4. Claim : 76 insofar as it involves one orifice

PROBLEM : a surgical device; SOLUTION : an elongated shaft having a first coupling; and a surgical instrument having a second coupling, the second coupling being complimentary to and configured to couple with the first coupling; wherein the elongated shaft is configured to be inserted into a body via a first orifice and the surgical instrument is configured to be inserted into the body via the first orifice; and wherein the elongated shaft is configured to be coupled with the surgical instrument via the first coupling and the second coupling after the elongated shaft is inserted into the body via the first orifice and after the surgical instrument is inserted into the body via the first orifice.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/18381

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s)   | Publication<br>date  |
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| US 5400267                                | A | 21-03-1995          | AU 5870394 A<br>WO 9414129 A1  | 04-07-1994<br>23-06-1994   |
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