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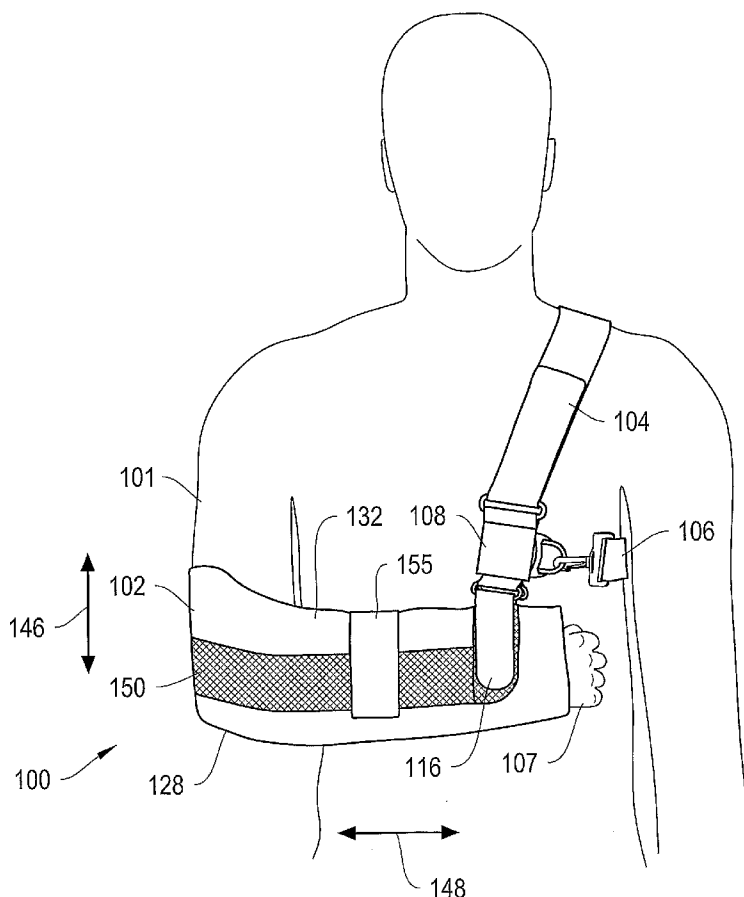
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[Continued on next page]

(54) Title: DEVICE FOR STABILIZING AN ARM



(57) Abstract: The invention provides, in various embodiments, devices and methods for supporting an injured arm. In certain embodiments, the invention relates to adjustable sling assemblies.



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## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2006/018429

## A. CLASSIFICATION OF SUBJECT MATTER

INV. A61F5/37

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)

A61F

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

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                   | Relevant to claim No.             |
|-----------|------------------------------------------------------------------------------------------------------|-----------------------------------|
| X         | AU 718 108 B2 (FLAVEL JOHN KAYSER)<br>6 April 2000 (2000-04-06)                                      | 1-9,<br>11-13,<br>17-19,<br>24-26 |
| Y         | the whole document                                                                                   | 10,<br>14-16, 20                  |
| Y         | US 2003/187373 A1 (GAYLORD ERIC LEE [US])<br>2 October 2003 (2003-10-02)                             | 10,<br>14-16, 20                  |
| A         | abstract; figures                                                                                    | 1-9,<br>11-13,<br>17-19           |
| A         | US 2005/010147 A1 (KAZMIERCZAK ANDY [US]<br>ET AL) 13 January 2005 (2005-01-13)<br>abstract; figures | 1                                 |
|           | -----<br>-/--                                                                                        |                                   |



Further documents are listed in the continuation of Box C.



See patent family 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
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- \*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

9 May 2007

Date of mailing of the international search report

06/08/2007

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# 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. |
|-----------|-----------------------------------------------------------------------------------------|-----------------------|
| A         | US 4 834 082 A (GHADIALI NAFISA Z [US])<br>30 May 1989 (1989-05-30)<br>figures<br>----- | 1, 24, 25             |
| A         | US 4 372 301 A (HUBBARD VANCE M ET AL)<br>8 February 1983 (1983-02-08)<br>-----         |                       |
| A         | US 5 772 617 A (LAY BONNITA S [US])<br>30 June 1998 (1998-06-30)<br>-----               |                       |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2006/018429

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 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 III Observations where unity of invention is lacking (Continuation of item 3 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.:

1-26

### 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: 1-26

A sling for supporting an arm  
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2. claims: 27-36

Another sling for supporting an arm  
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3. claims: 37-41

Another sling for supporting an arm  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/018429

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|----|---------------------|----------------------------|---------------------|
| AU 718108                                 | B2 | 06-04-2000          | AU 2842697 A               | 15-01-1998          |
| US 2003187373                             | A1 | 02-10-2003          | NONE                       |                     |
| US 2005010147                             | A1 | 13-01-2005          | CA 2537908 A1              | 31-03-2005          |
|                                           |    |                     | EP 1663083 A2              | 07-06-2006          |
|                                           |    |                     | JP 2007505651 T            | 15-03-2007          |
|                                           |    |                     | WO 2005027805 A2           | 31-03-2005          |
| US 4834082                                | A  | 30-05-1989          | NONE                       |                     |
| US 4372301                                | A  | 08-02-1983          | NONE                       |                     |
| US 5772617                                | A  | 30-06-1998          | NONE                       |                     |