(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
1 November 2007 (01.11.2007)

(10) International Publication Number
WO 2007/124113 A3

(51) International Patent Classification:
HOIR 12/24 (2006.01)

(21) International Application Number:
PCT/US2007/009760

(22) International Filing Date: 19 April 2007 (19.04.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/794,035 21 April 2006 (21.04.2006) US
11/788,123 18 April 2007 (18.04.2007) US


(72) Inventors; and

(74) Agent: HOGUE, Curtis, D., Jr.; c/o Intellecivate, P.O. Box 52050, Minneapolis, Minnesota 55402 (US).


(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, Ug, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
23 April 2009

Figure 5a

(54) Title: CLAMPING A FLAT FLEX CABLE AND SPRING CONTACTS TO A CIRCUIT BOARD

(57) Abstract: The present invention provides a clamp with spring contact elements to receive and secure a flat flex cable with exposed electrical traces to an electrical circuit such as on a printed circuit board. The clamp of the present invention has features for enhanced registration and alignment of exposed electrical traces on the flat flex cable to the spring contact elements in the clamp. Another aspect of the invention is the ability to connect high density contact arrays within the clamp to a circuit board via an array of contact pads on the opposite side of the substrate on which the spring contact elements are disposed. One exemplary application of the present invention is to connect a camera module in a cell phone to a printed circuit board or like electrical device in the phone.
## INTERNATIONAL SEARCH REPORT

### A. CLASSIFICATION OF SUBJECT MATTER

**IPC:** 12/24

**USPC:** 439/49, 493,497,630,331

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 . . 439/495,493,497,630,331

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X</strong></td>
<td>U S 4, 944, 690 (IMAI) 3/1 July 1990 (3/10 1990), column 2, lines 55-68.</td>
<td>1-5 and 13-15</td>
</tr>
<tr>
<td><strong>Y</strong></td>
<td>U S 6, 152, 771 (JUNITWAIT) 28 November 2000 (28/1 1200), column 3, lines 55-57.</td>
<td>6, 7 and 17-18</td>
</tr>
</tbody>
</table>

### D. Further documents are listed in the continuation of Box C.

- **"** 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 application or patent published on or after the international filing date
  - **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)
  - **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

- **"** 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
- **A** document member of the same patent family

**Date of the actual completion of the international search:** 02 February 2008 (02 02 2008)

**Date of mailing of this report:** 07 FEB 2008

**Name and mailing address of the ISA/US:**

Mail Stop PCT, Attn ISA/US Commissioner for Patents
P.O Box 1450
Alexandria, Virginia 223 13-1450

**Facsimile No.** (571) 273-3201

**Authorized officer:**

Tulsi Das Patel

**Telephone No.** 800-786-9 199

Form PCT/ISA/210 (second sheet) (April 2007)