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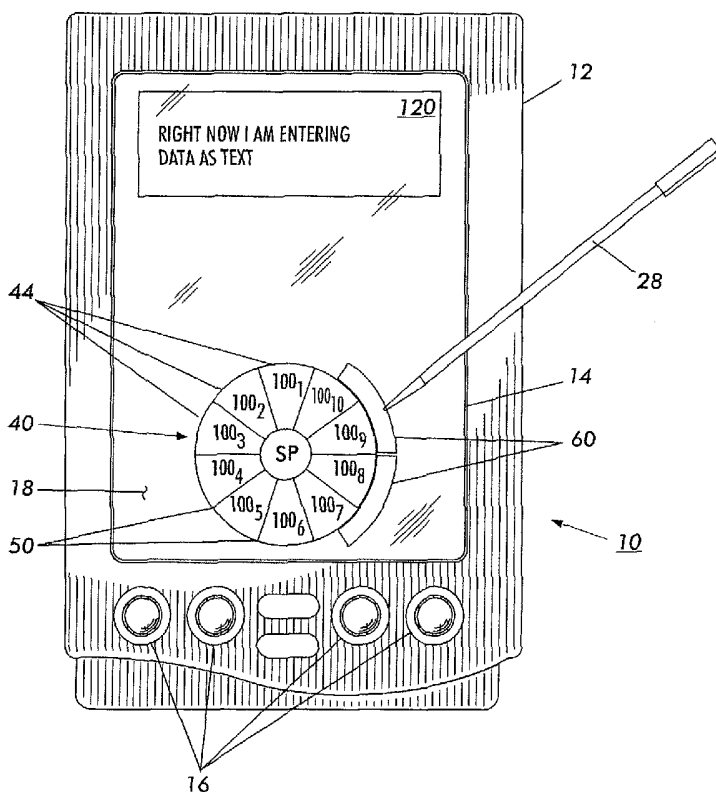
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- (71) Applicant and (72) Inventor: MURPHY, Michael, W. [US/US]; 4 State Street, Manchester, NY 14504 (US).
- (74) Agents: BASCH, Duane, C. et al.; Basch & Nickerson LLP, 1777 Penfield Road, Penfield, NY 14526 (US).
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[Continued on next page]

(54) Title: IMPROVED USER INTERFACE FOR CHARACTER ENTRY USING A MINIMUM NUMBER OF SELECTION KEYS



(57) Abstract: The present invention is a method and apparatus for entry of alphanumeric characters or symbols, employing fewer data entry keys than the number of characters to be selected from. In particular the invention "multiplexes" a given display area (14) to control the display of specific character groupings (44) and to facilitate user selection and entry or editing of characters.

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FR, GB, GR, HU, IE, IT, LU, MC, 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).

Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i)) for all designations
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/16582

<p>A. CLASSIFICATION OF SUBJECT MATTER</p> <p>IPC(7) : G06F 3/00 US CL : 715/810,812,813,816,864; 455/566,403; 379/354,355.05,355.07,355.09,142.17,433.04,433.06,433.07,433.0</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>																							
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) U.S. : 715/810,812,813,816,864; 455/566,403; 379/354,355.05,355.07,355.09,142.17,433.04,433.06,433.07,433.0</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</p>																							
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <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>X --- Y</td> <td>US 6,810,272 (Kraft et al.) 26 October 2004 (10.26.2004); figs. 1-9; col. 2, lines 12-21; col. 3, line 54 through col. 4, line 12; col. 6, lines 1-31; col. 6, line 52 through col. 7, line 17; col. 7, lines 53-55; col. 8, lines 29-42, col. 8, line 65 through col. 9, line 9; col. 9, line 42 through col. 10, line 21.</td> <td>1-3, 5, 7, 20, 30, 31, 40, 56, 62 and 63 ----- 4, 6, 8-19, 21-29, 32-39, 41-55, 57-61 and 64-73</td> </tr> <tr> <td>Y</td> <td>US 6,708,214 (La Fleur) 16 March 2004 (03.16.2004); fig. 5.</td> <td>4</td> </tr> <tr> <td>Y</td> <td>US 6,169,538 B1 (Nowlan et al.) 2 January 2001 (01.02.2001); col. 5, lines 1-9.</td> <td>6, 8</td> </tr> <tr> <td>Y</td> <td>US 5,128,672 (Kaehler) 7 July 1992 (07.07.1992); col. 3, lines 19-49.</td> <td>9-12</td> </tr> <tr> <td>Y</td> <td>US 6,724,370 B2 (Dutta et al.) 20 April 2004 (04.20.2004); figs. 1, 5 and 7-10; col. 1, lines 49-50; col. 4, lines 53 and 54; col. 4, line 53 through col. 5 line 19; col. 1, lines 49-50.</td> <td>13-19, 21-23, 29, 32-39, 41-47, 59-61, 64, 68-73</td> </tr> <tr> <td>Y</td> <td>US 6,369,836 (Larson et al.) 9 April 2002 (04.09.2002); col. 16, lines 62-67; col. 17, lines 13-21.</td> <td>21, 23-29</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X --- Y	US 6,810,272 (Kraft et al.) 26 October 2004 (10.26.2004); figs. 1-9; col. 2, lines 12-21; col. 3, line 54 through col. 4, line 12; col. 6, lines 1-31; col. 6, line 52 through col. 7, line 17; col. 7, lines 53-55; col. 8, lines 29-42, col. 8, line 65 through col. 9, line 9; col. 9, line 42 through col. 10, line 21.	1-3, 5, 7, 20, 30, 31, 40, 56, 62 and 63 ----- 4, 6, 8-19, 21-29, 32-39, 41-55, 57-61 and 64-73	Y	US 6,708,214 (La Fleur) 16 March 2004 (03.16.2004); fig. 5.	4	Y	US 6,169,538 B1 (Nowlan et al.) 2 January 2001 (01.02.2001); col. 5, lines 1-9.	6, 8	Y	US 5,128,672 (Kaehler) 7 July 1992 (07.07.1992); col. 3, lines 19-49.	9-12	Y	US 6,724,370 B2 (Dutta et al.) 20 April 2004 (04.20.2004); figs. 1, 5 and 7-10; col. 1, lines 49-50; col. 4, lines 53 and 54; col. 4, line 53 through col. 5 line 19; col. 1, lines 49-50.	13-19, 21-23, 29, 32-39, 41-47, 59-61, 64, 68-73	Y	US 6,369,836 (Larson et al.) 9 April 2002 (04.09.2002); col. 16, lines 62-67; col. 17, lines 13-21.	21, 23-29
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<p><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.</p> <table border="1"> <tr> <td>* Special categories of cited documents:</td> <td>"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</td> </tr> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"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</td> </tr> <tr> <td>"E" earlier application or patent published on or after the international filing date</td> <td>"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</td> </tr> <tr> <td>"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)</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td></td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			* Special categories of cited documents:	"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	"A" document defining the general state of the art which is not considered to be of particular relevance	"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	"E" earlier application or patent published on or after the international filing date	"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	"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)	"&" document member of the same patent family	"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										
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<p>Date of the actual completion of the international search</p> <p>12 May 2005 (12.05.2005)</p>		<p>Date of mailing of the international search report</p> <p>18 JUL 2005</p>																					
<p>Name and mailing address of the ISA/US</p> <p>Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450</p> <p>Facsimile No. (571) 273-8300</p>		<p>Authorized officer</p> <p>Kristine Kincaid</p> <p>Telephone No. (703) 305-3900</p>																					

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US04/16582**C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,625,283 (Sato) 23 September 2003 (09.23.2003); figs. 1, 2 and 4-6; col. 4, lines 10-63; col. 3, lines 24-36.	37, 54
Y	US 6,286,064 (King et al.) 4 September 2001 (09.04.2001); fig. 4B; col. 3, lines 49-56; col. 20, lines 13-31; col. 11, lines 30-32; col. 23, lines 56-60; col. 24, lines 29-40	38, 64-73
Y	US 5,841,849 (Macor) 24 November 1998 (11.24.1998); figs. 4-11.	48-53, 55, 57, 58