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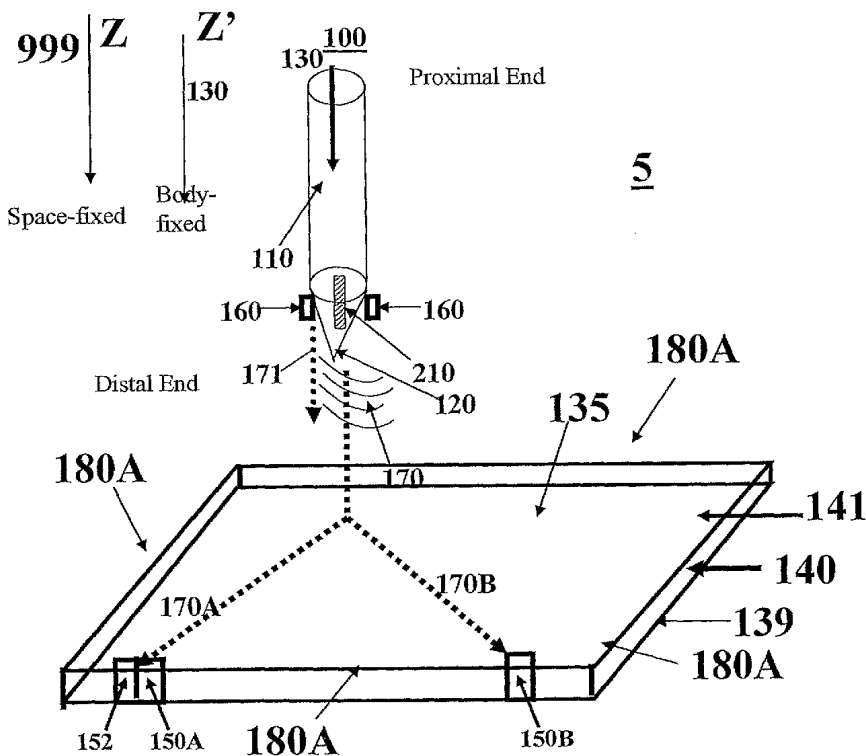
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(54) Title: DIGITAL PEN SYSTEM, TRANSMITTER DEVICES, RECEIVING DEVICES, AND METHODS OF MANUFACTURING AND USING THE SAME



(57) Abstract: A system (5) for tracking the position of a digital (100) pen including a (i) pen-fixed ultrasound device (210) (i.e. transmitter or receiver) and (ii) a plurality of writing-surface fixed ultrasound devices (150) (i.e. transmitters or receivers) is disclosed. In some embodiments, a measurement is made of the time that it takes for ultra-sound to travel between the pen-fixed ultrasound device (210) and the writing-surface fixed ultrasound devices (150) via a path that includes a writing surface sub-path (170) between the 'given point' (175) on the writing surface and the writing-surface fixed ultrasound devices (150). In some embodiments, the position of the digital pen (100) or a component thereof (for example, pen-fixed ultrasound device (210)) may be determined in accordance with (i) the aforementioned measured times of ultra-sound travel; and (ii) the speed of sound within the writing surface

(140). Related methods for tracking the position of the digital pen (100) are disclosed. Related methods for manufacturing any presently-disclosed system are also provided. Furthermore, apparatus and methods for transmitting ultra-sound from a pen-fixed ultrasound transmitter (210), and for detecting ultra-sound that propagates in a board or writing surface (140) are disclosed.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 345/179,180,181,182,183

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 practicable, search terms used)
 EAST database

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	US 7,248,250 B2 (PETTERSSON ET AL.) 24 July 2007 (24.07.2007), column 1, line 15 through column 17, line 23.	1-99
X, T	US 7,295,193 B2 (FAHRAEUS) 13 November 2007 (13.11.2007), column 1, line 19 through column 13, line 3.	1-99
X, T	US 7,342,350 B2 (TODA) 11 March 2008 (11.03.2008), column 1, line 21 through column 20, line 12.	1-99
X, P	US 2006/0239505 A1 (BJORKLUND ET AL.) 26 October 2006 (26.10.2006), item [0052] through item [0115].	1-99
X, P	US 2006/0267965 A1 (CLARY) 30 November 2006 (30.11.2006), item [0024] through item [0095].	1-99
X, P	US 2007/0080955 A1 (COHEN ET AL.) 12 April 2007 (12.04.2007), item [0024] through item [0081].	1-99

Further documents are listed in the continuation of Box C. See patent family annex.

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