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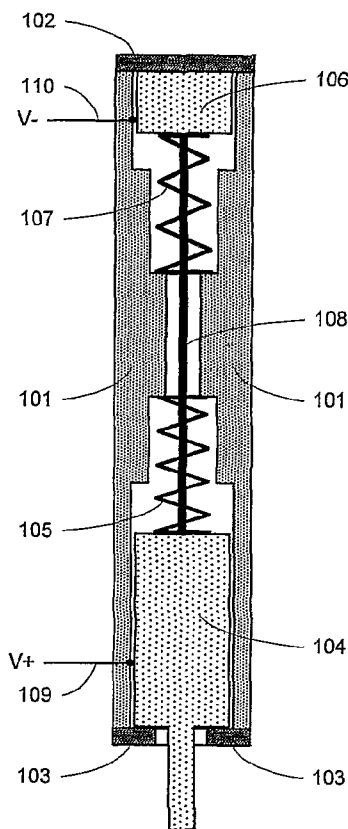
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[Continued on next page]

(54) Title: VARIABLE VOLUME, SHAPE MEMORY ACTUATED INSULIN DISPENSING PUMP



(57) Abstract: A portable pumping system provides insulin or other drugs to a user. A shape memory element is used to actuate the pump and an intelligent system controls the actuator in order to minimize stresses within the system and provide accurate and reliable dosage delivery. The control system utilizes various types of feedback to monitor and optimize the position of the pumping mechanisms. Physical design aspects also minimize stress and the combination of the physical design aspects and the intelligent operation of the system results in a lightweight and cost effective pump that may be used in a disposable fashion if desired.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - F04B 17/00 (2007.01) USPC - 417/413.2 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) USPC - 604/65, 67, 151, 152, 154, 156; 700/282; 417/212, 213, 410.1, 410.2, 413.2, 413.3 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) PubWEST(USPT, PGPB, EPAB, JPAB); Google Scholar Search Terms Used: insulin, piston, stroke, switch, pump, shape memory, nitinol, plunger, position sensor, capacitance, conductive, magnetic, magnetic field, primed, prim\$, warning		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0115067 A1 (RUSH et al.) 17 June 2004 (17.06.2004), entire document, esp., para[0028], [0036].	1-27
Y	US 2005/0051580 A1 (RAMEY) 10 March 2005 (10.03.2005), para[0053]-[0054].	1-9
Y	US 2004/0085215 A1 (MOBERG et al.) 06 May 2004 (06.05.2004), para[0006], [0072], [0122], [0144], [0146], [0153], [0175].	7-26
Y	US 5,662,461 A (ONO) 02 September 1997 (02.09.1997), Abstract.	27
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774