



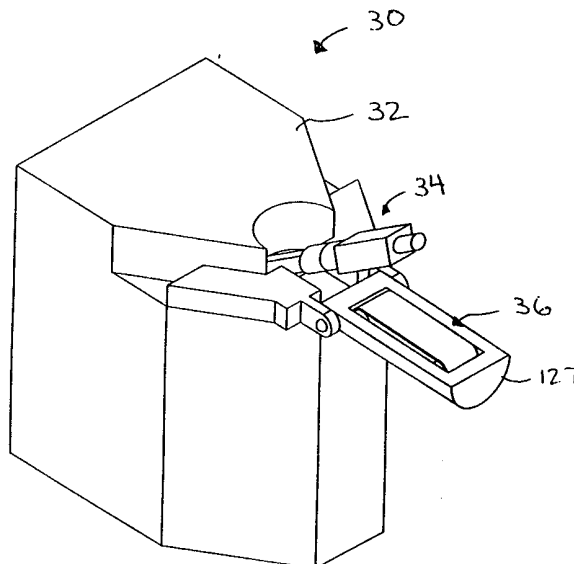
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<p>(21) International Application Number: PCT/US99/01822 (22) International Filing Date: 28 January 1999 (28.01.99) (30) Priority Data: 60/072,809 28 January 1998 (28.01.98) US (71) Applicant (for all designated States except US): HT MEDICAL SYSTEMS, INC. [US/US]; Suite 902, 6001 Montrose Road, Rockville, MD 20852 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): CUNNINGHAM, Richard, L. [US/US]; 630B South 15th Street, Arlington, VA 22202 (US). FELDMAN, Philip [US/US]; 5520 Heatherwood Road, Baltimore, MD 21227 (US). FELDMAN, Ben [US/US]; 1632 Great Falls Street, McLean, VA 22101 (US). MERRIL, Gregory, L. [US/US]; 4822 Leland Street, Chevy Chase, MD 20815 (US). (74) Agents: SHAPIRO, Stuart, B. et al.; Epstein, Edell & Retzer, Suite 400, 1901 Research Boulevard, Rockville, MD 20850 (US).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 25 November 1999 (25.11.99)</p>

(54) Title: INTERFACE DEVICE AND METHOD FOR INTERFACING INSTRUMENTS TO VASCULAR ACCESS SIMULATION SYSTEMS

(57) Abstract

An interface device (30) and method for interfacing instruments to a vascular access simulation system serve to interface peripherals in the form of mock or actual medical instruments to the simulation system to enable simulation of medical procedures. The interface device includes a catheter unit assembly (34) for receiving a catheter needle assembly, and a skin traction mechanism (36) to simulate placing skin in traction or manipulating other anatomical sites for performing a medical procedure. The catheter needle assembly and skin traction mechanism are manipulated by a user during a medical procedure. The catheter needle assembly and skin traction mechanism are manipulated by a user during a medical procedure. The simulation system receives measurements from interface device encoders and updates the simulation and a display, while providing control signals to a force feedback device to enable application of force feedback to the catheter needle assembly.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/01822

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(6) :G09B 23/28
 US CL :434/262, 266, 267, 268, 272
 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. : 434/262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275

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)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y, P	US 5,821,920 A (ROSENBERG ET AL) 13 OCTOBER 1998, See the Whole Document	1-8
Y, P	US 5,800,179 A (BAILEY) 01 SEPTEMBER 1998, See the Whole Document	1-8
Y, P	US 5,766,016 A (SINCLAIR ET AL) 16 JUNE 1998, See the Whole Document	1-8
X	US 5,704,791 A (GILLIO) 06 JANUARY 1998, See the Whole Document	1, 5
Y		2-4, 6-8
Y	US 5,623,582 A (ROSENBERG) 22 APRIL 1997, See the Whole Document	1-8

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

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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.
Y	US 4,907,973 A (HON) 13 MARCH 1990, See the Whole Document	1-8
Y	US 4,642,055 A (SALITERMAN) 10 FEBRUARY 1987, See the Whole Document	1-8
A	US 3,226,846 A (WOOD) 04 JANUARY 1966	NONE

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PCT/US99/01822

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

West:

search terms: surgical, surgery, medical, simulate, simulation, virtual, reality, vr, computer, processor, cpu, force, feedback, catheter, needle, vascular