

(51) International Patent Classification:
G09B 23/28 (2006.01)

[US/US]; P.o. Box 100286, Gainesville, FL 32610-0286 (US).

(21) International Application Number:
PCT/US2009/031963(74) Agent: **DANIELS, Gwendolyn, L.**; Saliwanchik, Lloyed & Saliwanchik, P.o. Box 142950, Gainesville, FL 32614-2950 (US).(22) International Filing Date:
26 January 2009 (26.01.2009)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/023,709 25 January 2008 (25.01.2008) US(71) Applicant (for all designated States except US): **UNIVERSITY OF FLORIDA RESEARCH FOUNDATION, INC.** [US/US]; 223 Grinter Hall, Gainesville, FL 32611 (US).

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(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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, 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:

— of inventorship (Rule 4.17(iv))

[Continued on next page]

(54) Title: DEVICES AND METHODS FOR IMPLEMENTING ENDOSCOPIC SURGICAL PROCEDURES AND INSTRUMENTS WITHIN A VIRTUAL ENVIRONMENT

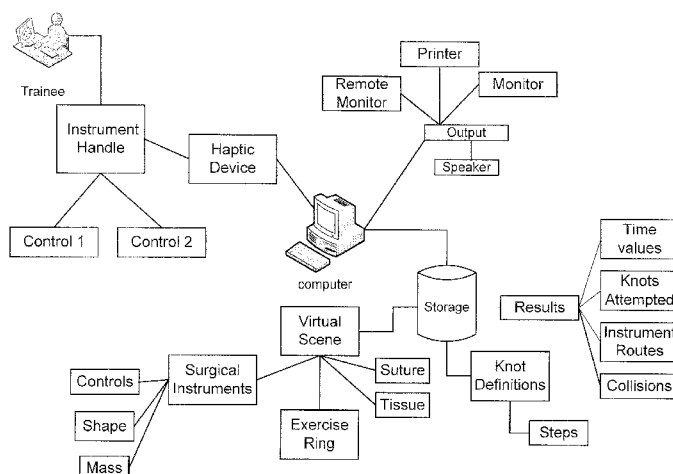


FIG. 1

(57) Abstract: Devices and methods are provided for combining the handle of a surgical instrument with a force feedback generator, able to create resistance to motion similar to that encountered in a real operating environment. The working end of the surgical instrument is recreated in a virtual environment and manipulated by the modified handle through the force feedback generator. Actions of the instrument handle modify a model and display of the virtual environment and transmit a haptic response back to the handle. The devices and methods provide a means for repeatedly performing maneuvers that accurately simulate the actual instrument, but in the virtual environment. The virtual environment is modeled to accurately simulate the use of the instrument including manipulation of and collisions with other virtual objects, such as surgical thread or internal tissues. Training and assessment tools are also provided that coach or assess a user's proficiency with the instrument.

**Published:****(88) Date of publication of the international search report:**

29 October 2009

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/031963**A. CLASSIFICATION OF SUBJECT MATTER****G09B 23/28(2006.01)i**

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)

IPC G09B 23/00, 9/00

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

Korean Utility models and applications for Utility models since 1975

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Key Words : simulatation, surgery, haptic, tactile, display

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 7056123 B2 (Pedro Gregorio, Verdun et al.,) 6 June 2006 See Abstract, Claims 1-23 and Figure 1	1,2,15,16,17,37,38 3-14,18-36,39-107
A	US 5766016 A (Michael J. Sinclair et al.,) 16 June 1998 See Abstract, Claims 1-27 and Figures 1-3	1-107
A	US 5149270 A (M. J. McKeown) 22 September 1992 See Abstract, Claims 1-13 and Figures 1-3	1-107
A	JP 2004-344491 A (FUJIMOTO HIDEO et al.,) 9 December 2004 See Abstract, Claims 1-6 and Figure 1	1-107
A	JP 05-303327 A (MORITA MFG CO LTD) 16 November 1993 See Abstract, Claims 1-22 and Figure 1	1-107



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

07 SEPTEMBER 2009 (07.09.2009)

Date of mailing of the international search report

07 SEPTEMBER 2009 (07.09.2009)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/031963

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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JP 2004-344491 A	9. 12. 2004	none	
JP 05-303327 A	16. 11. 1993	none	