5,755,577	A		5/1998	Gillio
5,757,358	A		5/1998	Osga
5,766,016	A		6/1998	Sinclair
5,767,839	A		6/1998	Rosenberg
5,769,640	A		6/1998	Jacobus et al.
5,771,037	A		6/1998	Jackson
5,781,172	A		7/1998	Engel et al.
5,784,052	A		7/1998	Keyson
5,785,630	A		7/1998	Bobick et al.
5,790,108	A		8/1998	Salcudean et al.
5,802,353	A		9/1998	Avila et al.
5,805,140	A		9/1998	Rosenberg et al.
5,808,603	A		9/1998	Chen
5,821,921	A		10/1998	Osborn et al.
5,825,308	A		10/1998	Rosenberg
5,831,408	A		11/1998	Jacobus et al.
5,844,392	A		12/1998	Peurach et al.
5,880,714	A		3/1999	Rosenberg et al.
5,889,670	A		3/1999	Schuler et al.
5,912,661	A		6/1999	Siddiqui
5,914,705	A		6/1999	Johnson et al.
5,929,846	A		7/1999	Rosenberg et al.
5,944,151	A		8/1999	Jakobs et al.
5,956,016	A		9/1999	Kruenzner et al.
5,956,484	A		9/1999	Rosenberg et al.
5,959,613	A		9/1999	Rosenberg et al.
5,973,689	A		10/1999	Gallery
5,986,643	A		11/1999	Harvill et al.
5,987,437	A		11/1999	Nishiumi et al.
5,990,869	A		11/1999	Kubica et al.
6,001,014	A		12/1999	Ogata et al.
6,004,134	A		12/1999	Marcus et al.
6,020,876	A		2/2000	Rosenberg et al.
6,024,576	A		2/2000	Bevirt
6,028,593	A		2/2000	Rosenberg et al.
6,037,927	A		3/2000	Rosenberg
6,059,506	A	*	5/2000	Kramer
6,078,308	A		6/2000	Rosenberg et al.
6,088,017	A		7/2000	Tremblay et al.
6,088,019	A		7/2000	Rosenberg
6,100,874	A		8/2000	Schena et al.
6,111,577	A		8/2000	Zilles et al.
6,128,006	A		10/2000	Rosenberg
6,160,489	A		12/2000	Perry et al.
6,166,723	A		12/2000	Schena et al.
6,184,868	B1		2/2001	Shahoian et al.
6,219,032	B1		4/2001	Rosenberg et al.
6,219,034	B1		4/2001	Elbing et al.
6,243,078	B1		6/2001	Rosenberg
6,422,941	B1		7/2002	Thorner et al.
6,429,846	B2		8/2002	Rosenberg et al.
6,985,133	B1		1/2006	Rodomista et al.
2004/0075676	A1		4/2004	Rosenberg et al.

FOREIGN PATENT DOCUMENTS

EP	0265011	A1	4/1988
EP	0 349 086	A1	1/1990
EP	0607580	A1	7/1994
EP	0 626 634	A2	11/1994
EP	0875819	A1	4/1998
JP	H2-185278		7/1990
JP	H4-8381		1/1992
JP	H5-192449		8/1993
JP	H7-24147		1/1995
WO	WO 92/00559		1/1992
WO	WO 95/20788		8/1995
WO	WO 95/32459		11/1995
WO	WO 96/28777		9/1996
WO	WO 97/20305		6/1997
WO	WO 97/21160		6/1997
WO	WO 97/31333		8/1997
WO	WO 00/03319		1/2000
WO	WO 00/21071		4/2000

OTHER PUBLICATIONS

Patrick, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," *Master of Science Thesis*, MIT, Aug. 1990, archived Nov. 8, 1990.

Calder, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," *Bachelor of Science Thesis*, MIT, May 1983, archived Jun. 23, 1983.

Wiker, "Teletouch Display Development: Phase 1 Report," *Technical Report 1230*, Naval Ocean Systems Center, San Diego, Jul. 1988.

Bliss, "Optical-to-Tactile Image Conversion for the Blind," *IEEE Transactions on Man-Machine Systems*, vol. MMS-11, No. 1, Mar. 1970.

Johnson, "Shape-Memory Alloy Tactile Feedback Actuator," *Armstrong Aerospace Medical Research Laboratory*, AAMRL-TR-90-039, Aug. 1990.

Kontarinis et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," Presence, 4(4):387-402, Harvard Univ., 1995.

Aukstakalnis et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.

Eberhardt et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," DSC-vol. 55-1, *Dynamic Systems and Control*: vol. 1, ASME 1994.

Gobel et al., "Tactile Feedback Applied to Computer Mice," *International Journal of Human-Computer Interaction*, vol. 7, No. 1, pp. 1-24, 1995.

Pimentel et al., "Virtual Reality: through the new looking glass," 2nd Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.

"Cyberman Technical Specification," *Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide*, Apr. 5, 1994.

Ouhyoung et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," *Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95*, Seoul, Korea, Aug. 21-24, 1995.

Kaczmarek et al., "Tactile Displays," *Virtual Environment Technologies*, Chap. 9, pp. 349-414.

Lake, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html, 1994.

Yamakita et al., "Tele-Virtual Reality of Dynamic Mechanical Model," *Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Raleigh, NC, Jul. 7-10, 1992.

Noll, "Man-Machine Tactile," *SID Journal*, Jul./Aug. 1972 Issue.

Rosenberg, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," *Ph.D. Dissertation*, Stanford University, Jun. 1994.

Minsky et al., "Feeling and Seeing: Issues in Force Display," ACM 089791-351-5/90/0003, pp. 235-242 270.

Iwata, Hiroo, "Artificial Reality with Force-feedback: Development of Desktop Virtual Space with Compact Master Manipulator," Computer Graphics, vol. 24, No. 4, Aug. 1990, pp. 165-170.

Akamatsu et al., "Multimodal Mouse: A Mouse-Type Device with Tactile and Force Display," Presenace, vol. 3, No. 1, Winter 1994, pp. 73-80.

Hasser, C. et al., "Tactile Feedback with Adaptive Controller for a Force-Reflecting Haptic Display," Parts 1 and 2, IEEE 0-7803-3131-1, 1996, pp. 526-533.

Hasser, C., "Tactile Feedback for a Force-Reflecting Haptic Display," School of Eng., Univ. of Dayton, Dayton, OH, 1995, pp. 1-98.

Dennerlein et al., "Vibrotactile Feedback for Industrial Telemanipulators," 6th Annual Symp. On Haptic Interfaces for Virtual Environment and Teleoperator Systems, ASME IMECE, Nov. 1997, pp. 1-7.

Dennerlein, Jack et al., "Commercialization of Vibrotactile Feedback for Telemanipulation and Virtual Environments," 1997, Phase I Final Report for ONR Contract N00014-96-C-0325 (not published or publicly available).

Atkinson et al., "Computing With Feeling," Comput. & Graphics, vol. 2, 1997, pp. 97-103.