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(71) Applicant: **AGILENT TECHNOLOGIES, INC.**
[US/US]; 395 Page Mill Road, Palo Alto, CA 94306 (US).

(72) Inventors: **WONG, Marvin, Glenn**; 93 Honey Hill Lane,
Woodland Park, CO 80863 (US). **FONG, Arthur**; 7940
Sawback Trail, Colorado Springs, CO 80919 (US).

(74) Agent: **WAY, Kyle, J.**; Intellectual Property Administra-
tion, MS: DL-429, Agilent Technologies, Inc., P.O. Box
7599, Loveland, CO 80537-0599 (US).

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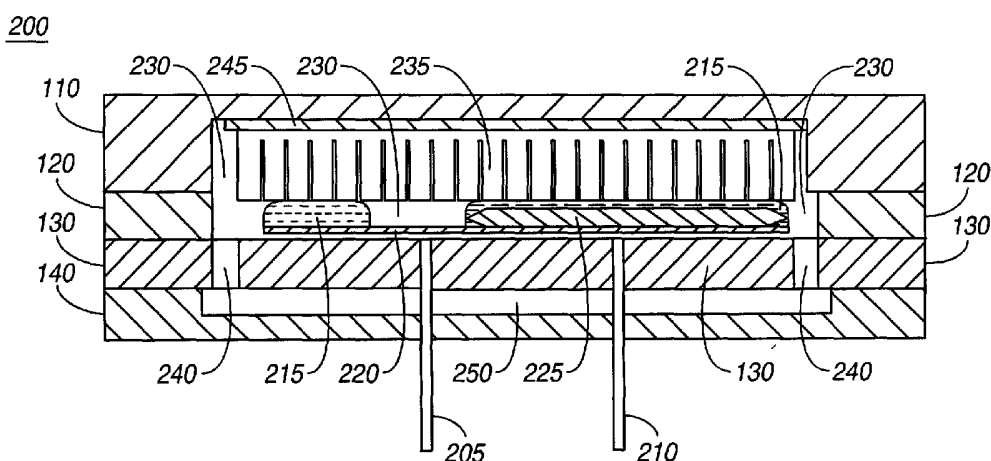
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Declaration under Rule 4.17:

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AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,
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[Continued on next page]

(54) Title: SLUG CATERPILLAR PIEZOELECTRIC LATCHING REFLECTIVE OPTICAL RELAY



(57) Abstract: A reflective optical switch includes a chamber housed within a solid material and a plurality of piezoelectric elements within the chamber. A slug coupled to a liquid metal within the chamber may be coupled to one or more of the piezoelectric elements. Actuating one or more piezoelectric elements causes the slug to move from a first number of wetting pads to a second number of wetting pads. The slug moves from the first number of wetting pads to the second number of wetting pads breaking a liquid metal surface tension between the slug and the first number of wetting pads and couples the slug and the second number of wetting pads. The movement of the slug and the presence of the liquid metal creates a reflective surface routing one or more signals from the first one or more optical waveguides to the second one or more optical waveguides.

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International application No.

PCT/US04/02708

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01H 51/00

US CL : 200/182

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. : 200/182, 187-189, 209-214, 216, 219, 233-236; 310/328, 331348, 363; 335/4, 47, 78; 385/19

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)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,323,447 B1 (KONDOH et al) 27 November 2001 (27.11.2001)	1-10
A	US 6,470,106 B2 (MCCLELLAND et al) 22 October 2002 (22.10.2002)	1-10
A	US 6,487,333 B2 (FOUQUET) 26.November 2002 (26.11.2002)	1-10
A	US 6,515,404 B1 (WONG) 04 February 2003 (04.02.2003)	1-10
A,P	US 6,559,420 B1 (ZAREV) 06 May 2003 (06.05.2003)	1-10

☐	Further documents are listed in the continuation of Box C.	☐	See patent family annex.
*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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INTERNATIONAL SEARCH REPORT

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Continuation of Item 4 of the first sheet:

The title is too long.

New title: SLUG CATERPILLAR PIEZOELECTRIC LATCHING REFLECTIVE OPTICAL RELAY

Continuation of B. FIELDS SEARCHED Item 3:

EAST

search terms; liquid metal; slugs; optical; relays; switches; waveguides; reflective wetting pads