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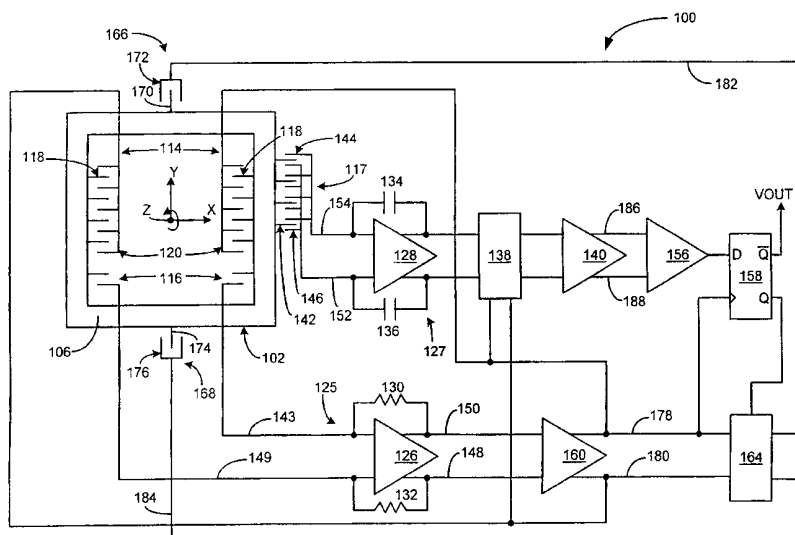
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(54) Title: FEEDBACK MECHANISM FOR RATE GYROSCOPES



(57) Abstract: A mechanical rate gyroscope (100) including a micro-fabricated mechanical sensor (102). The mechanical sensor includes a first segmented drive system (114) used to impart vibration to a mass and a transverse segmented drive system (166, 168) used to cancel a Coriolis force applied to the mass when the mechanical sensor undergoes rotation. The mechanical rate gyroscope further includes a force-feedback control mechanism (158, 164) used to provide at least one cycle of drive signals employed by the first drive system to the transverse drive system. The force-feedback control mechanism generates a feedback signal used to control the polarity of the drive signals provided to the transverse drive system. The feedback signal has a pulse repetition frequency proportional to the applied angular rate. The proportionality constant relating the applied angular rate to the pulse repetition frequency includes transduction coefficients that are less sensitive to the mechanical and electrical properties of the gyroscope.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/41072

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01P 9/04; G01C 19/56

US CL : 73/504.12

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. : 73/504.12, 504.14, 504.15, 504.16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

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

NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 5,945,599 A (FUJIYOSHI et al) 31 August 1999 (31.08.1999), col. 13, lines 9-24 and col. 20, lines 12-27.	1, 2, 4, 5, 8-10 ----- 3
Y	US 5,604,312 A (LUTZ) 18 February 1997 (18.02.1997), col. 2, lines 1-3.	3
X,P --- Y,P	US 6,089,089 (HSU) 18 July 2000 (18.07.2000), col. 5, line 53 - col. 6, line 1.	1, 2, 4, 5, 8-10 ----- 3

☐ 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
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

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