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[Continued on next page]

- (54) Title:** PUMP SYSTEM HAVING OPEN-LOOP TORQUE CONTROL

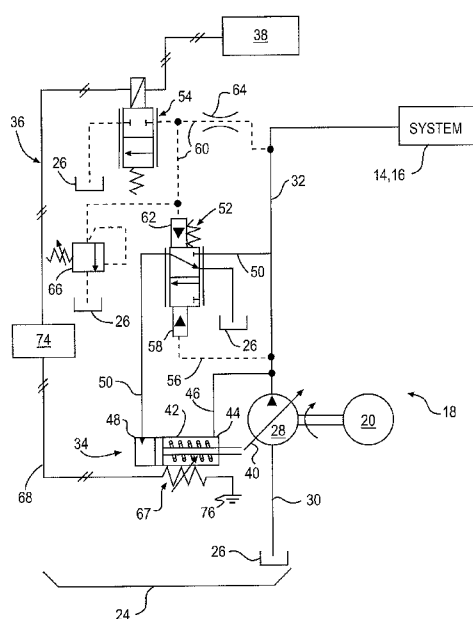


FIG. 2

(57) Abstract: A pump system (24) is disclosed. The pump system may have a pump (28) with a displacement that is variable, and an actuator (34) movable to adjust the displacement of the pump. The pump system may also have an electro- hydraulic valve (36) fluidly connected to the actuator and configured to control movement of the actuator, and a variable resistor (67) mechanically connected to at least one of the actuator and the pump. The variable resistor may be adjustable by movement of the at least one of the actuator and the pump to vary a current passing through the electro-hydraulic valve.



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A. CLASSIFICATION OF SUBJECT MATTER***F15B 21/08(2006.01)i, E02F 9/22(2006.01)i, F15B 13/044(2006.01)i, F15B 15/24(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)

F15B 21/08; F04B 49/06; F15B 13/044; F02D 29/04; F04B 49/00; F16D 31/02

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

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: pump system, torque, displacement and variable resistor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6010309 A (TAKAMURA, FUJITOSHI et al.) 04 January 2000 See column 4, line 6 - column 7, line 64 and figures 1 - 5.	1-10
A	US 2010-0154403 A1 (BRICKNER CHAD T. et al.) 24 June 2010 See paragraphs [0020] - [0027] and figure 2.	1-10
A	US 6672055 B1 (KONISHI, HIDEO et al.) 06 January 2004 See abstract, column 5, lines 52 - 67 and figure 2.	1-10
A	JP 05-010269 A (KOMATSU LTD.) 19 January 1993 See abstract and figure 2.	1-10



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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