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**Declarations under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

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(54) **Title:** RESETTABLE PRESSURE CYCLE-OPERATED PRODUCTION VALVE AND METHOD

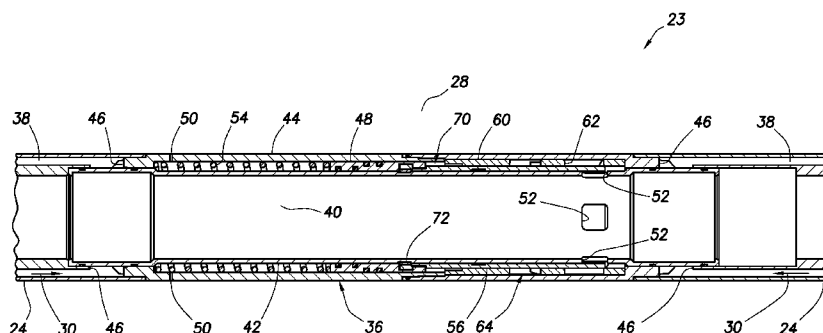


FIG. 2

(57) **Abstract:** A method of actuating multiple valves in a well can include applying one or more pressure cycles to the valves without causing actuation of any of the valves, and then reducing pressure applied to the valves, thereby resetting a pressure cycle-responsive actuator of each valve. A pressure cycle-operated valve for use in a well can include a closure member, a piston which displaces in response to pressure applied to the valve, and a ratchet mechanism which controls relative displacement between the piston and the closure member. The ratchet mechanism may permit relative displacement while one or more pressure cycles are applied to the valve, and the ratchet mechanism may prevent relative displacement in response to a pressure sequence of: a) a reduction in pressure applied to the valve, b) a predetermined number of pressure cycles applied to the valve, and c) an increase in pressure applied to the valve.



## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2012/021949****A. CLASSIFICATION OF SUBJECT MATTER***E21B 34/08(2006.01)i, E21B 34/10(2006.01)i, E21B 44/06(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)

E21B 34/08; E21B 43/12; E21B 43/00; E21B 34/10

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) &amp; Keywords: valve, pressure, wellbore, cycle, ratchet

**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 7210534 B2 (Hayter, Steven R. et al.) 01 May 2007 See column 3, line 15 - column 5, line 20.	1-3, 8, 11 4-7, 9, 10, 12-20
A	US 2002-0066573 A1 (PATEL, DINESH R.) 06 June 2002 See paragraphs 0017, 0029 and figure 5.	1-20
A	US 2001-0042626 A1 (PATEL, DINESH R.) 22 November 2001 See paragraph 0033 and figure 6.	1-20
A	US 6684950 B2 (PATEL, DINESH R.) 03 February 2004 See column 4, lines 21 - 32.	1-20

 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

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"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

"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

"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

"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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

02 AUGUST 2012 (02.08.2012)

Date of mailing of the international search report

**07 AUGUST 2012 (07.08.2012)**

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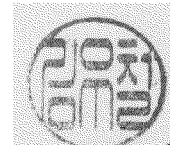
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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2012/021949**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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