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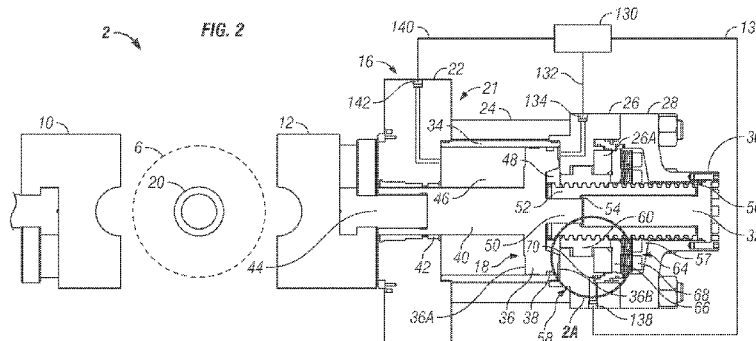
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(54) Title: BLOWOUT PREVENTER TRANSLATING SHAFT LOCKING SYSTEM



(57) Abstract: The disclosure provides a blowout preventer (BOP) system with an actuator for opening and closing a ram(12). The actuator includes a locking system having a clutch piston (70) to operate a clutch (64) having ratcheting teeth (78). The locking system disengages the clutch prior to the ram opening and closing. The clutch piston (70) has a first portion (92) with a larger area than a second portion (94). A clutch fluid pressure (13) acts on the first portion (92), and a closing fluid pressure (134) acts on the second portion (94). This area difference in the clutch piston portions allows the clutch to be disengaged during closing operations, even when the closing fluid pressure (134) is the same as the clutch fluid pressure (138) and the clutch is biased engaged by a bias assembly (74). Further, closing fluid pressure (134) is applied to lessen the load on the clutch ratcheting teeth (81), while the clutch fluid pressure (138) is applied to unlock the clutch.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/022003

A. CLASSIFICATION OF SUBJECT MATTER
INV. E21B33/06
ADD.
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

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)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 076 208 A (OLSON RICHARD A) 28 February 1978 (1978-02-28) cited in the application the whole document -----	1-25
A	US 3 941 141 A (ROBERT EDDIE L) 2 March 1976 (1976-03-02) column 7, line 54 - column 8, line 52 -----	1-25
A	US 7 300 033 B1 (WHITBY MELVYN F [US] ET AL) 27 November 2007 (2007-11-27) column 7, lines 6-20 -----	1-25
A	US 4 523 639 A (HOWARD JR ROLAND M [US]) 18 June 1985 (1985-06-18) column 4, lines 4-17 column 4, lines 46-59 -----	1-25

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	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 14 January 2013	Date of mailing of the international search report 01/02/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Garrido Garcia, M
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2012/022003

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