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EUROPEAN PATENT APPLICATION

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⑦① Applicant: **DRESSER INDUSTRIES, INC., The Dresser Building Elm At Akard P.O. Box 718, Dallas Texas 75021 (US)**

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⑦② Inventor: **Berkenkamp, Gary Dean, 1131 Circle Bend, Missouri City Texas 77489 (US)**
 Inventor: **Smith, Ross Edward, 7602 Grape, Houston Texas 77074 (US)**

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⑦④ Representative: **Wagner, Karl H., WAGNER & GEYER Patentanwälte Gewuerzmuehlstrasse 5 Postfach 246, D-8000 München 22 (DE)**

⑤④ **Pump noise filtering apparatus for a borehole measurement while drilling system utilizing drilling fluid pressure sensing.**

⑤⑦ An apparatus for removing pulsation noise caused by a well drilling fluid circulating pump from fluid pressure pulse transmitted measurement while drilling date passing through drilling fluid in a drill string of a borehole measurement while drilling system. The noise filtering apparatus includes a drilling fluid pressure sensor and an adaptive estimator that memorizes the pulse noise signature of a pump in synchronization with the pump's strokes. The memorized signature is removed from the signal data derived from pressure pulsations in the drilling fluid in order to remove or filter the pump's noise or pressure signal disturbing influence from this data. The adaptive estimator is arranged such that it will compensate for changing operating conditions of the pump so that this pump created noise is substantially, continuously filtered from the measurement while drilling date.

EP 0 078 907 A3



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EUROPEAN SEARCH REPORT

0078907
Application number

EP 82 10 8793

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	GB-A-2 009 473 (GEARHART-OWEN INDUSTRIES INC.) * Page 8, lines 29-49 *	1, 11	E 21 B 47/12
A	US-A-4 093 923 (SHELL OIL CO.) * Column 1, line 55 - column 2, line 16 *	1, 4, 6	
A	US-A-3 714 623 (SCHLUMBERGER TECHNOLOGY CORP.) * Column 3, line 25 - column 4, line 56; figure 1 *	5	
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			E 21 B G 01 V G 01 H H 04 L H 04 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 07-05-1984	Examiner ANDERSON A.TH.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			