

Title (en)  
AUTOMATED KICK AND LOSS DETECTION

Title (de)  
AUTOMATISIERTE STOSS- UND VERLUSTDETEKTION

Title (fr)  
DETECTION AUTOMATISEE DE SURSAUT ET DE PERTE DE PRESSION

Publication  
**EP 4051865 A4 20231206 (EN)**

Application  
**EP 20883020 A 20201027**

Priority  
• US 201962929064 P 20191031  
• US 2020070700 W 20201027

Abstract (en)  
[origin: WO2021087509A1] A method for monitoring and controlling a mud flow system in a drilling rig includes measuring an active mud volume in an active mud pit and an inactive mud volume in an inactive mud pit, modeling a modeled active mud volume in the active mud pit, determining a mud volume balance by calculating a difference between the measurement of the active mud volume and the modeled active mud volume, detecting a transfer of mud from the inactive mud pit to the active mud pit based on a combination of a change in the measurement of the inactive mud volume in the inactive mud pit and a change in the mud volume balance, and detecting downhole gains and losses automatically based on the mud volume balance.

IPC 8 full level  
**E21B 41/00** (2006.01); **E21B 21/06** (2006.01); **E21B 21/08** (2006.01); **E21B 43/12** (2006.01); **E21B 47/008** (2012.01); **E21B 47/26** (2012.01)

CPC (source: EP US)  
**E21B 21/06** (2013.01 - EP US); **E21B 21/08** (2013.01 - EP US); **E21B 2200/20** (2020.05 - EP)

Citation (search report)  
• [XYI] US 2011220410 A1 20110915 - ALDRED WALTER [GB], et al  
• [A] GB 2564507 A 20190116 - EQUINOR ENERGY AS [NO]  
• [Y] MCCANN D ET AL: "COMPUTERIZED FLOW MONITORS DETECT SMALL KICKS", OIL AND GAS JOURNAL, PENNWELL, HOUSTON, TX, US, vol. 90, no. 8, 24 February 1992 (1992-02-24), pages 62 - 65, XP000249646, ISSN: 0030-1388  
• See also references of WO 2021087509A1

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**WO 2021087509 A1 20210506**; CN 114846220 A 20220802; EP 4051865 A1 20220907; EP 4051865 A4 20231206;  
US 2022397008 A1 20221215

DOCDB simple family (application)  
**US 2020070700 W 20201027**; CN 202080090190 A 20201027; EP 20883020 A 20201027; US 202017755364 A 20201027