

Title (en)
METHOD, APPARATUS, AND SYSTEM FOR CONTROLLING PUMPING DIRECTION-SWITCHING FOR USE IN PUMPING APPARATUS

Title (de)
VERFAHREN, VORRICHTUNG UND SYSTEM ZUR STEUERUNG EINER PUMPENRICHTUNGSSUMSCHALTUNG IN EINER PUMPVORRICHTUNG

Title (fr)
PROCÉDÉ, APPAREIL ET SYSTÈME DE COMMANDE DE CHANGEMENT DE SENS DE POMPAGE POUR UTILISATION DANS UN APPAREIL DE POMPAGE

Publication
EP 2647842 A1 20131009 (EN)

Application
EP 11871867 A 20110909

Priority
CN 2011079520 W 20110909

Abstract (en)
A method, apparatus, and system for controlling pumping direction switching for use in a pumping apparatus. The system comprises at least two first proximity switches (110) used for detecting whether a first oil cylinder piston (61) has reached a predetermined position; at least one second proximity switch (120) used for detecting whether a second oil cylinder piston (62) has reached a predetermined position; and a controller connected to the at least two first proximity switches (110) and to the at least one second proximity switch (120), used for selecting a proximity switch combination, and, when the selected proximity switch combination detects that the first oil cylinder piston (61) or the second oil cylinder piston (62) has reached the predetermined position, for controlling a direction-switching valve of the pumping apparatus to switch directions. The proximity switch combination comprises one of the at least two first proximity switches (110) and one of the at least one second proximity switch (120). When a proximity switch is damaged, another proximity switch is used to replace the damaged proximity switch, thereby ensuring that the control over direction-switching is maintained

IPC 8 full level
F04B 9/117 (2006.01); **F04B 15/02** (2006.01)

CPC (source: EP)
F04B 9/1172 (2013.01); **F04B 15/023** (2013.01); **F04B 2201/0201** (2013.01)

Cited by
CN111306028A; CN106704134A; CN103821688A

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)
EP 2647842 A1 20131009; **EP 2647842 A4 20140820**; BR 112013015754 A2 20181106; RU 2013126766 A 20151020; WO 2013033915 A1 20130314

DOCDB simple family (application)
EP 11871867 A 20110909; BR 112013015754 A 20110909; CN 2011079520 W 20110909; RU 2013126766 A 20110909