

Title (en)

SELF ADJUSTING EARTH BORING TOOLS AND RELATED SYSTEMS AND METHODS OF REDUCING VIBRATIONS

Title (de)

SELBSTANPASSENDE ERDBOHRWERKZEUGE UND ZUGEHÖRIGE SYSTEME UND VERFAHREN ZUR VERRINGERUNG VON SCHWINGUNGEN

Title (fr)

OUTILS DE FORAGE À AJUSTEMENT AUTOMATIQUE ET SYSTÈMES ET PROCÉDÉS ASSOCIÉS DE RÉDUCTION DES VIBRATIONS

Publication

**EP 3667012 A1 20200617 (EN)**

Application

**EP 19214216 A 20191206**

Priority

US 201816213838 A 20181207

Abstract (en)

A method of reducing vibration experienced by an earth-boring tool during a drilling operation involving a combination of crushing and shear cutting a subterranean formation. The method includes setting an initial exposure of a drilling element coupled to an actuation device disposed within a blade of the earth-boring tool to be overexposed or underexposed relative to a primary cutting element disposed at a leading face of the blade by a distance within a range of about 0.5% and about 8.0% of an overall diameter of the primary cutting element, applying weight-on-bit to the earth-boring tool, causing the drilling element to retract toward the actuation device and to be underexposed relative to the primary cutting element, and in response to a drilling event, moving the drilling element relative to a body of the earth-boring tool to change a level of underexposure of the drilling element relative to the primary cutting element.

IPC 8 full level

**E21B 10/43** (2006.01); **E21B 10/633** (2006.01); **E21B 44/00** (2006.01)

CPC (source: CN EP)

**E21B 10/325** (2013.01 - EP); **E21B 10/43** (2013.01 - CN EP); **E21B 10/54** (2013.01 - CN); **E21B 10/633** (2013.01 - EP)

Citation (applicant)

- US 201816213838 A 20181207
- US 201414516069 A 20141016
- US 2015191979 A1 20150709 - JAIN JAYESH R [US], et al
- US 201514851117 A 20150911
- US 201715691219 A 20170830
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- US 9255450 B2 20160209 - JAIN JAYESH R [US], et al
- US 9708859 B2 20170718 - JAIN JAYESH R [US], et al
- US 10000977 B2 20180619 - JAIN JAYESH R [US], et al

Citation (search report)

- [XA] WO 2017106344 A1 20170622 - BAKER HUGHES INC [US]
- [A] US 2017159370 A1 20170608 - EVANS KENNETH R [US], et al
- [A] WO 2016140663 A1 20160909 - HALLIBURTON ENERGY SERVICES INC [US]

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

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 3667012 A1 20200617**; AU 2019275556 A1 20200625; CA 3063866 A1 20200607; CN 111287665 A 20200616; MX 2019014509 A 20200720; RU 2019139569 A 20210604

DOCDB simple family (application)

**EP 19214216 A 20191206**; AU 2019275556 A 20191203; CA 3063866 A 20191205; CN 201911280894 A 20191209; MX 2019014509 A 20191203; RU 2019139569 A 20191204