Title (en)

Roller-cone bits, systems, drilling methods, and design methods with optimization of tooth orientation

Title (de)

Rollenmeissel, Systeme, Bohrverfahren und Konstruktionsmethoden mit Optimierung der Zahnorientierung

Title (fr)

Trépans à cônes, systèmes de forage, procédés de forage et procédés de conception présentant une orientation des dents optimisées

Publication

EP 1498572 A3 20060412 (EN)

Application

EP 04025232 A 19990831

Priority

- EP 03021139 A 19990831
- EP 99945376 A 19990831
- US 9844298 P 19980831

Abstract (en)

[origin: WO0012860A2] A novel and improved roller cone drill bit and method of design are disclosed. A roller cone drill bit for drilling through subterranean formations having an upper connection for attachment to a drill string, and a plurality of cutting structures rotatably mounted on arms extending downward from the connection. A number of teeth are located in generally concentric rows on each cutting structure. The actual trajectory by which the teeth engage the formation is mathematically determined. A straight-line trajectory is calculated based on the actual trajectory. The teeth are positioned in the cutting structures such that each tooth having a designed engagement surface is oriented perpendicular to the calculated straight-line trajectory.

IPC 8 full level

E21B 10/16 (2006.01); **E21B 10/08** (2006.01); **E21B 41/00** (2006.01)

CPC (source: EP)

E21B 10/08 (2013.01); **E21B 10/16** (2013.01)

Citation (search report)

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Designated contracting state (EPC)

GB IT

DOCDB simple family (publication)

WO 0012860 A2 20000309; **WO 0012860 A3 20000608**; **WO 0012860 A9 20001123**; AU 5798499 A 20000321; EP 1117894 A2 20010725; EP 1117894 A4 20020814; EP 1117894 B1 20031203; EP 1117894 B2 20100303; EP 1371811 A2 20031217; EP 1371811 A3 20040102; EP 1371811 B1 20110330; EP 1498572 A2 20050119; EP 1498572 A3 20060412; EP 1500781 A2 20050126; EP 1500781 A3 20060412; EP 1500782 A2 20050126; EP 1500782 A3 20060412; EP 1500783 A2 20050126; EP 1500783 A3 20060412; ID 28893 A 20010712; MX PA01002208 A 20030327

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US 9919992 W 19990831; AU 5798499 A 19990831; EP 03021139 A 19990831; EP 04025232 A 19990831; EP 04025560 A 19990831; EP 04025561 A 19990831; EP 04025562 A 19990831; EP 99945376 A 19990831; ID 20010732 A 19990831; MX PA01002208 A 19990831