Title (en)

Control system for guiding boring tools and a sensing system for locating the same.

Title (de)

Kontrollsystem zum Leiten von Bohrwerkzeugen und Messsystem, diese zu lokalisieren.

Title (fr)

Système de contrÔle pour guider des outils de forage et système capteur pour les détecter.

Publication

EP 0428180 A1 19910522 (EN)

Application

EP 90122530 A 19860404

Priority

- EP 86302534 A 19860404
- US 72058285 A 19850405
- US 72280785 A 19850412
- US 72379285 A 19850416

Abstract (en)

A control system for guiding a boring tool in a bore hole, characterised in that the tool has a longitudinal tool axis and includes motive means for advancing the tool axially through the earth and steering means for directing the motion of the tool relative to said axis in response to control signals, said control system compromising, axial electromagnetic source means for generating an axial alternating magnetic field directed along an axial source axis; a sensing assembly remote from said source means and including first and second pickup coils for sensing said alternating magnetic field, each of said first and second pickup coils, being responsive to the change of magnetic flux linked thereby by generating respective first and second electrical signals systematically related thereto, having a respective coil axis and being rigidly mounted in respect to the other with their respective axes at a substantial angle with respect to each other, and defining a sensing assembly axis substantially normal to both said coil axis, being balanced in respect to said sensing assembly axis to generate a respective null electrical signal when the lines of magnetic flux at the respective coil are normal to the respective coil axis at said sensing assembly axis; means responsive to said first and second electrical signals for indicating to direction of lines of magnetic flux a said sensing assembly relative to said sensing assembly axis, thereby indicating the attitude of said source means relative to said first and second pickup coils; control means for providing control signals for controlling said steering means.

IPC 1-7

E21B 7/06; E21B 47/022

IPC 8 full level

E21B 4/14 (2006.01); **E21B 7/06** (2006.01); **E21B 7/26** (2006.01); **E21B 47/022** (2012.01); **E21B 47/12** (2012.01)

CPC (source: EP US)

E21B 4/145 (2013.01 - EP); **E21B 7/068** (2013.01 - EP); **E21B 7/267** (2020.05 - EP US); **E21B 47/0228** (2020.05 - EP); **E21B 47/13** (2020.05 - EP)

Citation (search report)

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- [A] US 3529682 A 19700922 - COYNE JAMES C, et al
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Designated contracting state (EPC)

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