

Title (en)

Apparatus and method for information transmission by electromagnetic waves

Title (de)

Vorrichtung und Verfahren zur Übertragung von Nachrichten mittels elektromagnetischer Wellen

Title (fr)

Dispositif et méthode de transmission d'informations par onde électromagnétique

Publication

**EP 0816632 B1 20030903 (FR)**

Application

**EP 97401341 A 19970613**

Priority

FR 9608256 A 19960701

Abstract (en)

[origin: EP0816632A1] The device for transmitting information between the bottom of a shaft and the surface, where the shaft comprises a series of tubes separated into a lower and an upper part by means (9) of shutting off the internal space in the tubes and annular means (6) of sealing between the tubes and the shaft. The lower part contains a first assembly containing a data acquisition unit and means of transmitting and receiving electromagnetic signals, and a second assembly (2) for transmitting and receiving electromagnetic signals is placed inside the upper part by means of manoeuvre (3) containing at least one electrical or optical link to the surface. The second assembly has electrical contact with the tubes. Also claimed is the method of transmitting information between the bottom of a shaft and the surface using the equipment described above.

IPC 1-7

**E21B 47/12**

IPC 8 full level

**E21B 47/12** (2006.01)

CPC (source: EP US)

**E21B 47/13** (2020.05 - EP US); **E21B 47/26** (2020.05 - EP US)

Cited by

GB2337546A; GB2337546B; EP0995877A1; FR2785017A1; US6710600B1; US7071837B2; US6628206B1; US7249636B2

Designated contracting state (EPC)

FR GB IT

DOCDB simple family (publication)

**EP 0816632 A1 19980107; EP 0816632 B1 20030903**; AU 2834897 A 19980115; AU 726088 B2 20001102; CA 2209423 A1 19980101; CA 2209423 C 20061114; FR 2750450 A1 19980102; FR 2750450 B1 19980807; NO 317444 B1 20041101; NO 973006 D0 19970627; NO 973006 L 19980102; US 5945923 A 19990831

DOCDB simple family (application)

**EP 97401341 A 19970613**; AU 2834897 A 19970627; CA 2209423 A 19970630; FR 9608256 A 19960701; NO 973006 A 19970627; US 88647897 A 19970701