

Title (en)
Roof bolting method.

Title (de)
Automatisches Firstbolzverfahren.

Title (fr)
Méthode de boulonnage d'un toit.

Publication
EP 0216506 A1 19870401 (EN)

Application
EP 86306475 A 19860821

Priority
US 76854385 A 19850823

Abstract (en)
This invention discloses the addition of automatic roof bolting equipment (8,11) to continuous mining equipment (3) designed to mine seams of material such as trona or coal where it is necessary to place roof bolts to prevent collapse of the roof or overburden above the desired mineral being mined while the continuous miner is advancing into the seam of mineral or coal. The roof bolting apparatus allows the bolting operation to take place while the miner continues mining and is ideally performed by the miner operator.

IPC 1-7
E21D 20/00

IPC 8 full level
E21C 41/16 (2006.01); **E21D 20/00** (2006.01)

CPC (source: EP)
E21D 20/006 (2013.01)

Citation (search report)

- [Y] WO 8500636 A1 19850214 - KEMBLA COAL & COKE [AU]
- [Y] DE 3108877 A1 19820107 - VOEST ALPINE AG [AT]
- [A] GB 2075091 A 19811111 - INGERSOLL RAND CO
- [Y] DE 1807972 B2 19710909
- [AD] US 3493058 A 19700203 - ZITKO JOHN
- [AD] US 3647262 A 19720307 - KACMARCY CHARLES W
- [AD] US 4173373 A 19791106 - CAMPBELL JOHN A L [US], et al
- [AD] US 4199193 A 19800422 - DAMRON EARL M [US], et al
- [A] COAL AGE, vol. 83, no. 2, February 1978, pages 72-99, New York, US; N.P. CHIRONIS "New mining ideas abound in 1978"

Cited by
EA034425B1; US6698529B2; US2010221071A1; AT410002B; CN113494302A; CN102713144A; US2013106167A1; EA022139B1; AU2010317206B2; US6785988B2; WO0220946A1; WO2017125126A1; WO2011057603A3

Designated contracting state (EPC)
BE DE FR GB IT SE

DOCDB simple family (publication)
EP 0216506 A1 19870401; EP 0216506 B1 19901024; AU 582010 B2 19890309; AU 6178386 A 19870226; DE 3675131 D1 19901129; DK 402586 A 19870224; DK 402586 D0 19860822; ES 2002473 A6 19880816; FI 863357 A0 19860820; FI 863357 A 19870224; JP S6255396 A 19870311; NO 863380 D0 19860822; NO 863380 L 19870224; ZA 866366 B 19870527

DOCDB simple family (application)
EP 86306475 A 19860821; AU 6178386 A 19860822; DE 3675131 T 19860821; DK 402586 A 19860822; ES 8601300 A 19860822; FI 863357 A 19860820; JP 19698586 A 19860822; NO 863380 A 19860822; ZA 866366 A 19860822