

Title (en)  
CABLE BOLTS

Title (de)  
KABELBOLZEN

Title (fr)  
BOULONS DE CÂBLE

Publication  
**EP 3121369 A1 20170125 (EN)**

Application  
**EP 15177973 A 20150723**

Priority  
EP 15177973 A 20150723

Abstract (en)

A cable bolt for providing support and balance to a rock mass, comprising: a multi-strand cable having a plurality of steel wires being twisted together, said multi-strand cable having a first end portion for anchoring in a borehole of rock mass and a second end portion for being positioned adjacent to the opening of the borehole, a fixture secured to the second end portion of said multi-strand cable, wherein at least one of the plurality of steel wires is made from steel having as steel composition: a carbon content ranging from 0.20 weight percent to 0.95 weight percent, a silicon content ranging from 0.5 weight percent to 2.0 weight percent, a manganese content ranging from 0.40 weight percent to 1.0 weight percent, a chromium content ranging from 0.0 weight per cent to 1.0 weight percent, a sulphur and phosphor content being limited to 0.025 weight percent, the remainder being iron, and said steel has as metallurgical structure: a volume percentage of retained austenite ranging from 4 percent to 25 percent, the remainder being tempered primary martensite and untempered secondary martensite.

IPC 8 full level

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CPC (source: EP US)

**C21D 1/18** (2013.01 - EP US); **C21D 1/22** (2013.01 - EP US); **C21D 8/065** (2013.01 - EP US); **C21D 9/525** (2013.01 - EP US);  
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**C21D 1/19** (2013.01 - EP US); **C21D 1/25** (2013.01 - EP US); **C21D 2211/001** (2013.01 - EP US); **C21D 2211/008** (2013.01 - EP US)

Citation (search report)

- [Y] WO 2013041541 A1 20130328 - BEKAERT SA NV [BE]
- [Y] US 2015043976 A1 20150212 - DEFOSSEZ STIJN [BE], et al
- [A] US 2011299940 A1 20111208 - EARL JR JAMES L [US], et al
- [A] US 5586839 A 19961224 - GILLESPIE HARVEY D [US]
- [A] CA 2107826 A1 19940729 - GILLESPIE HARVEY D [US]
- [Y] "SDS Square Head Cable Bolt Special Deformed Strand", 1 September 2011 (2011-09-01), Internet, pages 1 - 4, XP055252962, Retrieved from the Internet <URL:<http://www.minovausa.com/pdfs/Products/SDS%20Sqr%20Head%20Cable%20Bolt%20-%20FINAL%20-%2007Sept2011.pdf>> [retrieved on 20160224]

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)

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CN 107849918 A 20180327; EP 3325769 A1 20180530; PE 20180638 A1 20180416; US 2018245468 A1 20180830;  
WO 2017012994 A1 20170126

DOCDB simple family (application)

**EP 15177973 A 20150723**; AU 2016294836 A 20160714; CA 2989263 A 20160714; CL 2017003380 A 20171226;  
CN 201680041823 A 20160714; EP 16739129 A 20160714; EP 2016066817 W 20160714; PE 2017002726 A 20160714;  
US 201615744392 A 20160714