

Title (en)  
ELECTRICAL CLAMPS

Title (de)  
ELEKTROKLEMMEN

Title (fr)  
BORNES ÉLECTRIQUES

Publication  
**EP 3198048 B1 20200226 (DE)**

Application  
**EP 15756842 A 20150829**

Priority  
• DE 102014014239 A 20140925  
• EP 2015001759 W 20150829

Abstract (en)  
[origin: WO2016045770A1] Electrical connection element containing a copper-zinc alloy. The copper-zinc alloy comprises (in percent by weight): 28.0 to 36.0 % Zn, 0.5 to 1.5 % Si, 1.5 to 2.5 % Mn, 0.2 to 1.0 % Ni, 0.5 to 1.5 % Al, 0.1 to 1.0 % Fe, optionally also up to a maximum of 0.1 % Pb, optionally also up to a maximum of 0.1 % P, optionally up to a maximum of 0.08 % S, the remainder being Cu and inevitable impurities. According to the invention, mixed silicides containing iron, nickel and manganese are incorporated in the matrix. The structure comprises an  $\alpha$ -matrix, which contains inclusions of  $\beta$ -phase from 5 up to 45 percent by volume and of mixed silicides containing iron, nickel and manganese up to 20 percent by volume. The structure further comprises mixed silicides containing iron, nickel and manganese having a stemmed shape and iron and nickel enriched mixed silicides having a globular shape.

IPC 8 full level  
**C22F 1/08** (2006.01); **C22C 9/04** (2006.01)

CPC (source: EP KR US)  
**C22C 9/04** (2013.01 - EP KR US); **C22F 1/08** (2013.01 - EP KR US)

Citation (examination)  
• WO 2005018055 A1 20050224 - GATOR LOC LLC [US], et al  
• US 3082288 A 19630319 - FRANCIS TRIBE THOMAS  
• DE 29712696 U1 19971120 - TRAFIMENT S P A [IT]

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

DOCDB simple family (publication)  
**DE 102014014239 A1 20160331; DE 102014014239 B4 20240411**; CN 106715731 A 20170524; EP 3198048 A1 20170802; EP 3198048 B1 20200226; JP 2017532436 A 20171102; JP 6514318 B2 20190515; KR 20170059436 A 20170530; PL 3198048 T3 20200713; TW 201617460 A 20160516; TW I651422 B 20190221; US 2017204501 A1 20170720; WO 2016045770 A1 20160331

DOCDB simple family (application)  
**DE 102014014239 A 20140925**; CN 201580045155 A 20150829; EP 15756842 A 20150829; EP 2015001759 W 20150829; JP 2017504661 A 20150829; KR 20177001287 A 20150829; PL 15756842 T 20150829; TW 104126718 A 20150817; US 201515326788 A 20150829