

Title (en)  
CLUSTER ARM ARRANGEMENT FOR THE INTERMEDIATE ROLL SETS OF 18 HS ROLL STANDS

Title (de)  
CLUSTERARMANORDNUNG FÜR DIE ZWISCHENWALZENSÄTZE VON 18 HS WALZGERÜSTEN

Title (fr)  
ENSEMBLE BRAS MULTI-CYLINDRES POUR LES SÉRIES DE CYLINDRES INTERMÉDIAIRES DE CAGES DE LAMINOIR À 18 CYLINDRES À DÉCALAGE HORIZONTAL (HS)

Publication  
**EP 2451593 B1 20140416 (DE)**

Application  
**EP 10739502 A 20100706**

Priority  
• EP 2010004062 W 20100706  
• DE 102009032200 A 20090707  
• DE 102009060640 A 20091228

Abstract (en)  
[origin: WO2011003561A1] The invention relates to a cluster arm arrangement for the intermediate roll sets of 18 HS roll stands, wherein swiveling cluster arms are arranged between the operating-side chock and the drive-side chock to the side of the intermediate roll, in which cluster arms the lateral support rolls for supporting the working rolls in the stand are integrated. A swivel pin (3) rigidly connected to the cluster arm is arranged between the chock (1) and the cluster arm (2), about the axis of which swivel pin the cluster arm (2) can be swiveled, and a locking mechanism for the cluster arm (2) and a stop (6) having a return spring (7) are arranged as a compact unit in the area between the cluster arm (2) and the chock (1) so as to act on the swivel pin (3).

IPC 8 full level  
**B21B 13/14** (2006.01)

CPC (source: EP KR US)  
**B21B 13/14** (2013.01 - US); **B21B 13/145** (2013.01 - EP US); **B21B 13/147** (2013.01 - EP US); **B21B 29/00** (2013.01 - EP US); **B21B 31/02** (2013.01 - EP KR US); **B21B 31/10** (2013.01 - EP KR US); **B21B 31/103** (2013.01 - EP US); **B21B 13/142** (2013.01 - EP US); **B21B 2013/025** (2013.01 - EP US); **B21B 2013/028** (2013.01 - EP US); **B21B 2203/06** (2013.01 - EP US); **B21B 2269/04** (2013.01 - EP US); **B21B 2269/06** (2013.01 - EP US); **B21B 2269/14** (2013.01 - EP US)

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 SE SI SK SM TR

DOCDB simple family (publication)  
**DE 102009060640 A1 20110113**; BR 112012000471 A2 20171031; BR 112012000471 B1 20201013; BR 112012000481 A2 20171031; BR 112012000481 B1 20200317; BR 112012001101 A2 20160223; BR 112012001101 B1 20201208; CN 102470408 A 20120523; CN 102470408 B 20150114; CN 102481605 A 20120530; CN 102481605 B 20150107; CN 102481606 A 20120530; CN 102481606 B 20150204; DE 102009060641 A1 20110113; DE 102009060642 A1 20110113; EP 2451592 A1 20120516; EP 2451592 B1 20140409; EP 2451593 A1 20120516; EP 2451593 B1 20140416; EP 2451594 A1 20120516; EP 2451594 B1 20140416; ES 2459942 T3 20140513; ES 2464124 T3 20140530; JP 2012532024 A 20121213; JP 2012532025 A 20121213; JP 2012532026 A 20121213; JP 5623522 B2 20141112; JP 5694312 B2 20150401; JP 5694313 B2 20150401; KR 101344714 B1 20131226; KR 101368296 B1 20140226; KR 101382164 B1 20140408; KR 20120044987 A 20120508; KR 20140015117 A 20140206; MY 152390 A 20140915; MY 154263 A 20150529; MY 164118 A 20171130; RU 2012103994 A 20130820; RU 2012104009 A 20130820; RU 2489218 C1 20130810; RU 2492008 C1 20130910; RU 2496591 C2 20131027; SA 110310775 B1 20140525; SA 110310776 B1 20140119; SA 110310777 B1 20140525; TW 201102185 A 20110116; TW 201103655 A 20110201; TW 201103656 A 20110201; TW I387491 B 20130301; TW I455765 B 20141011; TW I468236 B 20150111; US 2012151982 A1 20120621; US 2012153057 A1 20120621; US 2013192327 A1 20130801; US 9038430 B2 20150526; US 9656312 B2 20170523; WO 2011003561 A1 20110113; WO 2011003579 A1 20110113; WO 2011003580 A1 20110113; ZA 201109290 B 20120829; ZA 201109291 B 20120829; ZA 201109292 B 20120829

DOCDB simple family (application)  
**DE 102009060640 A 20091228**; BR 112012000471 A 20100707; BR 112012000481 A 20100706; BR 112012001101 A 20100707; CN 201080030755 A 20100706; CN 201080031897 A 20100707; CN 201080031898 A 20100707; DE 102009060641 A 20091228; DE 102009060642 A 20091228; EP 10731718 A 20100707; EP 10732662 A 20100707; EP 10739502 A 20100706; EP 2010004062 W 20100706; EP 2010004085 W 20100707; EP 2010004086 W 20100707; ES 10731718 T 20100707; ES 10739502 T 20100706; JP 2012518802 A 20100706; JP 2012518811 A 20100707; JP 2012518812 A 20100707; KR 20127000605 A 20100707; KR 20127001302 A 20100706; KR 20127001818 A 20100707; MY PI2012000022 A 20100707; MY PI2012000024 A 20100707; MY PI2012000026 A 20100706; RU 2012103994 A 20100707; RU 2012103995 A 20100706; RU 2012104009 A 20100707; SA 110310775 A 20101017; SA 110310776 A 20101017; SA 110310777 A 20101017; TW 99122277 A 20100707; TW 99122278 A 20100707; TW 99122282 A 20100707; US 201013378942 A 20100707; US 201013379424 A 20100707; US 201013379512 A 20100706; ZA 201109290 A 20111219; ZA 201109291 A 20111219; ZA 201109292 A 20111219