

Title (en)
Tool for cold rolling sheet material

Title (de)
Werkzeug zum Kaltwalzen eines Bleches

Title (fr)
Outil pour le laminage à froid d'une tôle

Publication
EP 2311584 B1 20150812 (EN)

Application
EP 10191260 A 20080124

Priority

- EP 08701934 A 20080124
- GB 0722263 A 20071113
- US 96256407 A 20071221

Abstract (en)
[origin: WO2009063154A1] A sheet of cold rolled material having on both of its surfaces rows of projections (11) and rows of depressions (12), the projections (11) on one surface corresponding with the depressions (12) on the other surface, the relative positions of the projections (11) and depressions (12) being such that lines drawn on a surface of the sheet between adjacent rows of projections (11) are non-rectilinear, the sheet having a base gauge G, wherein each projection (11) has a substantially continuous region of peak plastic strain at, toward or about its apex and/or is thinned by no more than 25% of its base gauge G. Methods of forming the sheet material and tools for forming the sheet material are disclosed.

IPC 8 full level
B21D 13/10 (2006.01); **E04C 2/32** (2006.01)

CPC (source: EP)
B21D 13/10 (2013.01); **E04C 2/08** (2013.01); **E04C 2/326** (2013.01)

Cited by
DE102013106880A1; US10633856B2

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)
AL BA MK RS

DOCDB simple family (publication)
WO 2009063154 A1 20090522; AT E495834 T1 20110215; AU 2008322769 A1 20090522; AU 2008322769 B2 20140313;
CA 2672065 A1 20090522; CA 2672065 C 20151117; CN 101970147 A 20110209; CN 101970147 B 20160803; DE 602008004618 D1 20110303;
DK 2091674 T3 20110509; EP 2091674 A1 20090826; EP 2091674 B1 20110119; EP 2311584 A1 20110420; EP 2311584 B1 20150812;
JP 2011502790 A 20110127; MX 2009007582 A 20090722; PL 118953 U1 20100816; PL 2091674 T3 20110630; PL 2311584 T3 20160129;
PL 65983 Y1 20120629; PT 2091674 E 20110420; RU 2008126622 A 20100110; RU 2448795 C2 20120427

DOCDB simple family (application)
GB 2008000261 W 20080124; AT 08701934 T 20080124; AU 2008322769 A 20080124; CA 2672065 A 20080124;
CN 200880115932 A 20080124; DE 602008004618 T 20080124; DK 08701934 T 20080124; EP 08701934 A 20080124;
EP 10191260 A 20080124; JP 2010532648 A 20080124; MX 2009007582 A 20080124; PL 08701934 T 20080124; PL 10191260 T 20080124;
PL 11895308 U 20080124; PT 08701934 T 20080124; RU 2008126622 A 20080630