

Title (en)

Joining method and device for driving a joining tool

Title (de)

Verfahren zum Fügen und Vorrichtung zum Betätigen eines Fügwerkzeuges

Title (fr)

Procédé d'assemblage et dispositif de commande d'un outil d'assemblage

Publication

**EP 1640081 B2 20110727 (DE)**

Application

**EP 05017030 A 20050804**

Priority

- DE 102004046407 A 20040924
- DE 102005031917 A 20050707

Abstract (en)

[origin: EP1640081A1] The stamping machine (2) has a stamping tool (16) pushing a rivet against a top sheet (A). The top sheet rests on a bottom sheet (B). The river deforms the sheets and forcing them into a matrix (6). A cylindrical holder piece (22) presses the sheets down against the rim of the matrix. A cylinder (4) contains a first piston (12) with a piston rod pressing down on an intermediate piece and the stamp. There are hydraulic fluid connections (24,26) to chambers (10a) above and (10b) below the first piston. A second piston slides on the piston rod of the first piston and pushes on the holder piece. It has throttle channels (28) allowing hydraulic fluid to flow through it slowly.

IPC 8 full level

**B21D 39/03** (2006.01); **B21J 15/02** (2006.01); **B21J 15/20** (2006.01)

CPC (source: EP KR US)

**B21D 39/031** (2013.01 - EP KR US); **B21J 15/025** (2013.01 - EP KR US); **B21J 15/20** (2013.01 - EP KR US); **Y10T 29/49833** (2015.01 - EP US); **Y10T 29/49835** (2015.01 - EP US); **Y10T 29/49837** (2015.01 - EP US); **Y10T 29/49908** (2015.01 - EP US); **Y10T 29/49915** (2015.01 - EP US); **Y10T 29/49943** (2015.01 - EP US); **Y10T 29/49954** (2015.01 - EP US); **Y10T 29/49956** (2015.01 - EP US); **Y10T 29/5343** (2015.01 - EP US); **Y10T 29/53709** (2015.01 - EP US); **Y10T 29/5377** (2015.01 - EP US); **Y10T 403/4966** (2015.01 - EP US)

Citation (opposition)

Opponent :

- US 6742235 B2 20040601 - BLACKET STUART EDMUND [AU], et al
- WO 9310925 A1 19930610 - HENROB LTD [GB]
- EP 0893179 A2 19990127 - EMHART INC [US]
- US 4096727 A 19780627 - GARGAILLO DANIEL PIERRE

Cited by

CN110238292A; CN102734267A; EP2511023A3; WO2011026944A1; DE102009040126A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

**EP 1640081 A1 20060329; EP 1640081 B1 20061018; EP 1640081 B2 20110727**; AT E342781 T1 20061115; CA 2516137 A1 20060324; CA 2516137 C 20100316; CA 2688948 A1 20060324; CA 2688948 C 20120131; DE 102005031917 A1 20060413; DE 502005000144 D1 20061130; JP 2006088225 A 20060406; JP 3955074 B2 20070808; KR 100794637 B1 20080114; KR 20060051487 A 20060519; US 2006065699 A1 20060330; US 2007124911 A1 20070607; US 2009077786 A1 20090326; US 7370399 B2 20080513; US 7475473 B2 20090113; US 7721405 B2 20100525

DOCDB simple family (application)

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