

Title (en)
Punching device and punch therefor

Title (de)
Stanzeinrichtung und Stanzstempel für diese

Title (fr)
Dispositif de poinçonnage et poinçon

Publication
EP 1604751 B1 20070418 (DE)

Application
EP 05011615 A 20050530

Priority
DE 202004009138 U 20040609

Abstract (en)
[origin: EP1604751A1] A perforating press, e.g. for perforating green sheets in the production of ceramic substrates, has a pattern of thin needles (21) held in a press block with the pointed ends passing through the sheets and into a set of socket holes. The top ends of the needles have waisted sections (24) onto which are secured shrink fit sleeves (22) to provide a thrust surface to drive the thin needles. The waisted profile can be prepared in a variety of processes and with a variety of profiles. The sleeve can be metal or plastic and can be fitted by a cold or hot process. The needles are replaceable when worn.

IPC 8 full level
B21D 28/34 (2006.01); **B26F 1/00** (2006.01); **B26F 1/14** (2006.01); **H05K 3/00** (2006.01)

CPC (source: EP KR US)
B21D 28/34 (2013.01 - EP KR US); **Y10T 83/9428** (2015.04 - EP US); **Y10T 83/943** (2015.04 - EP US); **Y10T 83/9476** (2015.04 - EP US)

Cited by
CN104690148A

Designated contracting state (EPC)
DE FR IT

DOCDB simple family (publication)
DE 202004009138 U1 20040812; DE 502005000599 D1 20070531; EP 1604751 A1 20051214; EP 1604751 B1 20070418; JP 2005349561 A 20051222; JP 4966516 B2 20120704; KR 20060048260 A 20060518; US 2005274251 A1 20051215; US 7578224 B2 20090825

DOCDB simple family (application)
DE 202004009138 U 20040609; DE 502005000599 T 20050530; EP 05011615 A 20050530; JP 2005169466 A 20050609; KR 20050048833 A 20050608; US 14821305 A 20050609