

Title (en)  
DEVICE FOR MAKING THROUGH-HOLES IN METAL BLOCKS

Publication  
**EP 0000943 B1 19810107 (DE)**

Application  
**EP 78100737 A 19780824**

Priority  
IT 1275477 A 19770831

Abstract (en)  
[origin: EP0000943A1] 1. Apparatus for obtaining through-bores in metal blocks, particularly steel blocks presenting a circular cross section, comprising a block-holding die matching the outer shape of the metal block, which presents at its bottom a movable counter-punch mounted retractable so as to leave open an aperture in the die, arranged co-axially to the bore to be obtained in the metal block, and which is associated to a boring punch co-axial to the said counter-punch and forceable into the metal block carried by the block-holding die by means of an hydraulic press cylinder, said boring punch carrying, at its forward free end directed against the block-holding die, a frontal flat-conical piercing head, characterized by the fact that the boring punch (26) is rotatable around its longitudinal axis, and that the piercing head (39) is arranged freely rotatable on the boring punch (26) around a rotational axis slightly inclined with respect to the longitudinal axis of the boring punch, and it bears with a rear sliding surface (139) inclined with respect to the longitudinal axis of the boring punch (29) against a correspondingly inclined bearing surface (138) of the boring punch (26).

IPC 1-7  
**B21J 5/10; B21J 9/04**

IPC 8 full level  
**B21D 22/08** (2006.01); **B21J 5/10** (2006.01); **B21J 9/02** (2006.01); **B21J 9/04** (2006.01)

CPC (source: EP)  
**B21J 5/10** (2013.01); **B21J 9/025** (2013.01); **B21J 9/04** (2013.01)

Cited by  
CN103909192A; GB2186534A; WO2012030244A3; WO9938739A1

Designated contracting state (EPC)  
BE CH DE FR GB LU NL SE

DOCDB simple family (publication)  
**EP 0000943 A1 19790307; EP 0000943 B1 19810107**; DE 2860420 D1 19810226; IT 1082622 B 19850521; SU 824881 A3 19810423

DOCDB simple family (application)  
**EP 78100737 A 19780824**; DE 2860420 T 19780824; IT 1275477 A 19770831; SU 2655252 A 19780830