Title (en)

Drill bit - roll forging process

Title (de)

Verfahren zum Walzschmieden von Bohrern

Title (fr)

Procédé de forgeage au laminoir pour forets

Publication

EP 0792705 A3 19981111 (EN)

Application

EP 97301286 A 19970226

Priority

GB 9604544 A 19960302

Abstract (en)

[origin: EP0792705A2] Drill bit roll forging apparatus, a method employing such apparatus, and a drill bit so formed, for roll forging a drill bit having two opposed helical flutes, said apparatus comprising: a) two forging wheels (30) disposed opposite one another and adapted to form the flutes (4,6) and whose axes lie in first and second substantially parallel wheel axis planes (60); wherein b) a blank (22) is adapted to be disposed between the wheels on a blank axis (20) parallel said wheel axis planes; c) a blank plane (20a) contains said blank axis and is perpendicular said wheel axis planes; d) the wheel axes are inclined (alpha) in their respective wheel axis planes with respect to the blank plane and on opposite sides thereto and whereby the helix angle of the drill bit is determined; e) the wheels have a spiral circumference (34a) sufficient to form a web between said flutes which tapers by at least 50% from a shank end of said flutes to a working end of the drill bit; f) the wheels have an asymmetric edge profile having a "centre of spread", wherein each centre of spread moves transversely with respect to the respective wheel axis as each wheel rotates from a start position to an end position; and g) said wheel axes are positioned in said wheel axis planes such that said centres of spread of the wheels remain one on either side of said blank plane during rotation of the wheels from said start position to said end position. A drill bit (1) has two opposed helical flutes and a web between said flutes which tapers by at least 50% from a shank end of said flutes to a working end of the drill bit, wherein the drill bit is roll formed from a blank, wherein the cross-section of the drill bit changes from its shank end to its working tip, such cross-section comprising quadrants defined by a diameter of the section from a front cutting lip of one flute to the corresponding cutting lip of the other, each flute primarily occupying opposing flute quadrants, wherein such cross-section changes from shank end to working tip not only by virtue of a decreasing web thickness, but also by the flute increasingly being incursive into the quadrant ahead of the flute quadrant in the direction of cutting rotation of the drill bit. <IMAGE>

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B21H 3/10

IPC 8 full level

B21H 3/10 (2006.01)

CPC (source: EP)

B21H 3/10 (2013.01)

Citation (search report)

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