

Title (en)  
Rotary drag bit having scouring nozzles.

Title (de)  
Drehfräsmessel mit Reinigungsdüsen.

Title (fr)  
Trépan racleur rotatif avec des buses de nettoyage.

Publication  
**EP 0295045 A2 19881214 (EN)**

Application  
**EP 88305172 A 19880607**

Priority  
US 5993387 A 19870609

Abstract (en)  
A drag type rotary drill bit (10) having a plurality of cutting elements (38) arranged in a plurality of rows extending radially in a generally arcuate path along the adjacent arcuate surface of the drill bit (10). The bore hole is defined by an arcuate concave surface (C) formed by the arcuate rows of the cutting elements (38) upon rotation of the drill bit (10). The centerline (70) of the fluid jet discharged from orifice (66) of scouring nozzle (54) strikes concave surface (C) at a point (P) at an angle between twenty-five (25) degrees and sixty-five (65) degrees with respect to the tangent (T) through point (P) for digging into the concave bottom hole surface (C) in a scouring action and continuing the scouring action after being deflected by the concave surface (C).

IPC 1-7  
**E21B 10/56**; **E21B 10/60**

IPC 8 full level  
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CPC (source: EP US)  
**E21B 10/602** (2013.01 - EP); **E21B 10/61** (2013.01 - EP US)

Cited by  
US9664012B2; CN102434090A; FR2768456A1; US5346025A; EP0365100A3; EP0872625A3; EP0959224A3; GB2363415A; GB2363415B; US10036232B2; US9669492B2; US9784037B2; WO9313290A1; WO2012116153A1; WO9012191A1; WO9624744A1; US9719302B2

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DE FR GB NL

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