

Title (en)
DRILL BIT ASSEMBLY WITH FLUID SEPARATOR

Publication
EP 0107475 A3 19860205 (EN)

Application
EP 83306327 A 19831018

Priority
• US 43523982 A 19821019
• US 50332283 A 19830610

Abstract (en)
[origin: EP0107475A2] In order to prevent moisture in the air supply to a drill bit assembly (18) generating mud in the area of the cones (22), diverter means (64) is provided within a plenum chamber (40) through which a first flow path for air to the cones flows. A stand pipe (62) can be supported on an orifice plate (46) and extending above the openings (52) of conduits (54) providing a second air flow. Perforations in the stand pipe (62) are above the level of the second conduits (54). A fluid flow diverter (64) at the end of the stand pipe is preferably of conical shape, larger diameter than the stand pipe and arranged so that its edges extend below some of the perforations on the stand pipe so that air entering the first flow must reverse course to pass through the perforations. Water cannot readily reverse in this manner. The larger second flow laterally out of the housing near the base of the plenum chamber below the stand pipe perforations is redirected away from the cutting cones (22) but picks up the dust and cuttings fed to it by the first flow and carries them out of the drill hole. Air for an air cooling and lubricating system for the bearings can be taken from the plenum chamber (40) above the diverter means (64) and fed through channels (72, 76, 80) to the bearings (24). The channel (72) leading from the plenum may be shielded (by 70) in the direction of fluid flow, again to require air entering it to reverse its flow direction.

IPC 1-7
E21B 21/00; **E21B 10/24**; **E21B 10/18**

IPC 8 full level
E21B 10/18 (2006.01); **E21B 10/23** (2006.01); **E21B 10/24** (2006.01); **E21B 21/00** (2006.01); **E21B 21/16** (2006.01)

CPC (source: EP)
E21B 10/18 (2013.01); **E21B 10/23** (2013.01); **E21B 21/002** (2013.01); **E21B 21/16** (2013.01)

Citation (search report)
• [Y] US 4083417 A 19780411 - ARNOLD JAMES F
• [Y] US 2920872 A 19600112 - BAUR GEORGE W, et al
• [A] AU 41129 B
• [A] US 3924695 A 19751209 - KENNEDY JOHN R
• [A] US 2861780 A 19581125 - BUTLER JIMMY L
• [A] US 4287957 A 19810908 - EVANS ROBERT F
• [A] US 4158394 A 19790619 - ERNST HORST M, et al
• [A] US 3123159 A 19640303
• [A] US 3788408 A 19740129 - DYSART T
• [A] US 2634101 A 19530407 - PEARL SLOAN

Cited by
AU2005248954B2; AU2008258269B2; US8517122B2; US9822589B2; WO2008148158A1

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

DOCDB simple family (publication)
EP 0107475 A2 19840502; **EP 0107475 A3 19860205**; **EP 0107475 B1 19881228**; DE 3378779 D1 19890202

DOCDB simple family (application)
EP 83306327 A 19831018; DE 3378779 T 19831018