

- [54] **DRILL BIT WITH FACETED PROFILE**
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- [21] **Appl. No.:** 523,802
- [22] **Filed:** May 15, 1990

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Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 523,235, May 11, 1990, abandoned.
- [51] **Int. Cl.⁵** **E21B 10/46; B22C 7/00; B22C 9/22; B22D 21/06**
- [52] **U.S. Cl.** **175/329; 76/108.2; 76/108.4; 164/9; 164/17; 164/44; 164/45; 175/410; 419/18**
- [58] **Field of Search** **175/410, 329, 409, 411, 175/412, 413, 379, 374, 375, 376, 377, 397, 398; 76/108.4, 108.2, 108.6, 108.1, DIG. 11, DIG. 12; 419/1, 18; 164/6, 9, 15, 17, 44, 45**

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[57] **ABSTRACT**

A drag bit with a faceted profile and method of its manufacture by which the facets provide for planar mold surfaces upon which cores having planar ends can completely contact the surface of the mold. The invention is particularly though not exclusively adapted to matrix body drag bits incorporating PDC cutters having tungsten carbide studs or cylinders which are mounted in wings, ribs or blades of the bit body. In accordance with a preferred embodiment of the present invention, the wings, ribs or blades have a small planar surface or facet at each PDC cutter location with each of the facets being at a consistent angular disposition with respect to the axis of the corresponding cutter stud. The facets are created by flat mold surfaces which facilitate the proper positioning and angular disposition of the cores which form the openings in the matrix for receiving the PDC cutters. In the practice of the present invention, the facets or flats are formed in a hard mold during machining or in a soft mold by using a bit pattern having corresponding facets.

27 Claims, 2 Drawing Sheets

