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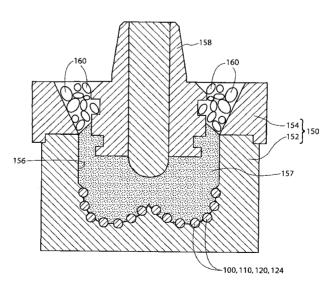
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
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(54) Title: DISPLACEMENT MEMBERS AND METHODS OF USING SUCH DISPLACEMENT MEMBERS TO FORM BIT BODIES OF EARTH BORING ROTARY DRILLS BITS



(57) Abstract: Displacement members (68,100,110,120,124) for use in forming a bit body of an earth-boring rotary drill bit include a body having an exterior surface, at least a portion of which is configured to define at least one surface of the bit body as the bit body is formed around the displacement member. In some embodiments, the body may be hollow and/or porous. Methods for forming eai-th-boring rotary drill, bits include positioning such a displacement member in a mold (62,150) and forming a bit body around the displacement member in the mold. Additional methods include pressing a plurality of particles to form a body, forming at least one recess in the body, positioning such a displacement member in the recess, and sintering the body to form a bit body.



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INV. B22F7/00 B22F3 B22F3/12 E21B10/00 -E21B10/55 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) E21B B22F Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data C. DOCUMENTS CONSIDERED TO BE RELEVANT Category\* Citation of document, with Indication, where appropriate, of the relevant passages Relevant to claim No. X EP 0 360 111 Å (EASTMAN CHRISTENSEN CO 1-20 [US]) 28 March 1990 (1990-03-28) the whole document column 9, lines 5-35X EP 0 790 386 A (CAMCO DRILLING GROUP LTD 1,9 [GB]) 20 August 1997 (1997-08-20) figures 3-6 the whole document Α US 5 944 128 A (TRUAX DAVID [US] ET AL) 31 August 1999 (1999-08-31) the whole document Α US 6 209 420 B1 (BUTCHER TRENT N [US] ET AL) 3 April 2001 (2001-04-03) X Further documents are listed in the continuation of Box C. See patent family annex. Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "O" document referring to an oral disclosure, use, exhibition or document published prior to the international filing date but later than the priority date claimed \*&\* document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 21 April 2008 28/05/2008 Name and mailing address of the ISA/ Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016

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