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[Continued on next page]

(54) Title: DRILL BITS AND OTHER DOWNHOLE TOOLS WITH HARDFACING HAVING TUNGSTEN CARBIDE PELLETS AND OTHER HARD MATERIALS

(57) Abstract: A hardfacing is provided to protect surfaces of drill bits and other downhole tools. The hardfacing may include tungsten carbide particles or pellets formed with an optimum weight percentage of binding material and dispersed within and bonded to a matrix deposit. The tungsten carbide particles may be formed by sintering or other appropriate techniques. The tungsten carbide particles may have generally spherical shapes, partially spherical shapes or non-spherical shapes.

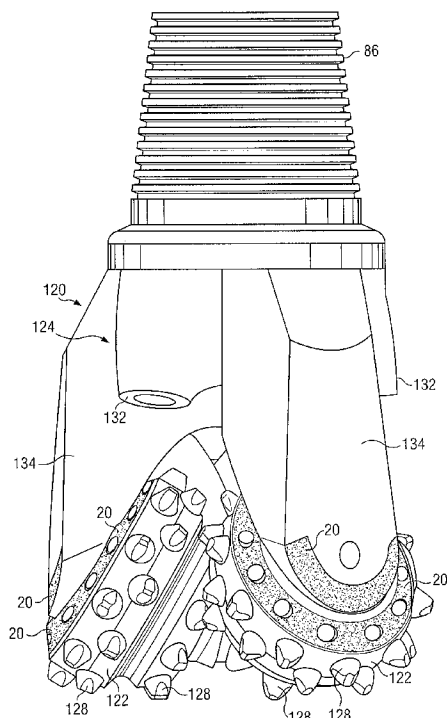


FIG. 1

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - E21B 10/00 (2008.04)
 USPC - 175/374
 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)
 IPC(8): E21B 10/00 (2008.04)
 USPC: 175/374

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 IPC(8): E21B 10/00 (2008.04) (text search)
 USPC: 175/327, 331, 338, 374, 375, 425 (text search)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 PubWEST(USPT,PGPB,EPAB,JPAB); Internet search via Google Web and Google Scholar search engines. Search terms: roller rotary cone cutter drill bit metallic matrix binder pellet particle matrix binder weld welding sinter sintering diamond tungsten wolfram carbide hardfacing hardface hardfaced hard face

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,755,299 A (LANGFORD, JR. et al.) 26 May 1998 (26.05.1998) col. 1 ln. 17 to col. 10 ln. 41, Fig. 1-10	1-38
A	US 5,755,298 A (LANGFORD, JR. et al.) 26 May 1998 (26.05.1998)	1-38
A	US 6,138,779 A (BOYCE) 31 October 2000 (31.10.2000)	1-38

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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 invention
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"Y" 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 other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 16 June 2008 (16.06.2008)	Date of mailing of the international search report 25 JUN 2008
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