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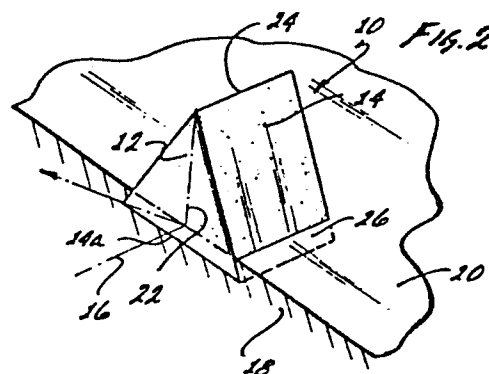
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(54) An exposed polycrystalline diamond mounted in a matrix body drill bit.

(57) A polycrystalline diamond body (10) is securely retained on the surface (17) of a matrix body bit (11) while being substantially exposed and unsupported above the matrix surface (18) by partial, unsupported disposition of the diamond body (10) below the surface (20) of the matrix material (18) in such a manner that at least two locking points (26) on the diamond body (10) and between the diamond body (10) and matrix material (18) are established. More particularly, depending upon the geometric shape of the diamond body (10), the diamond body (10) is disposed within the matrix material (18) and extends above the surface (20) of the matrix material (18) by at least 50% of the volume of the diamond (10) and at an orientation such that one or more sides or surfaces (14) of the diamond body (10) are inclined with respect to the normal to the surface (20) of the matrix material (18), so that when the matrix material (18) is molded about the inclined surfaces (14) of the diamond body (10) a locking wedge is formed thereover.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
Y	US-A-3 885 637 (VEPRINTSEV) * Whole document *	1-9, 11 , 15, 16 , 20-22	E 21 B 10/46
P, Y	OIL & GAS JOURNAL, vol. 82, no. 14, 2nd April 1984, pages 133-138, Tulsa, Oklahoma, US; J. WOOD: "Thermally stable cutters extend application of synthetic diamond bits to hard formations" * Whole document *	1-9, 11 , 15, 16 , 20, 22	
Y	US-A-4 234 048 (ROWLEY) * Whole document *	1-9, 11 , 15, 16 , 20-22	
A		13, 17	TECHNICAL FIELDS SEARCHED (Int. Cl. 4) E 21 B
A	US-A-4 190 126 (TOKIWA) * Whole document *	1, 9, 10 , 17, 19 , 20-22	
A	US-A-3 709 308 (ROWLEY) * Abstract; figures *	1-5, 9, 17, 20- 22	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 03-03-1986	Examiner PAUCNIK B.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			