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(71) Applicant: Norton Christensen, Inc.
365 Bugatti Street
Salt Lake City Utah 84126(US)

(72) Inventor: Meskin, Alexander K.
2955 Morningside Drive
Salt Lake City Utah 84117(US)

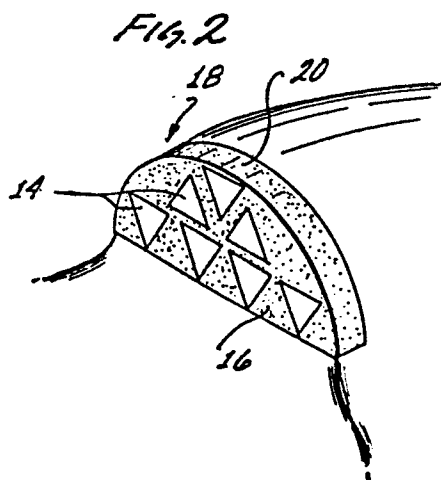
(72) Inventor: Merrill, Leo
338 South 700 East Orem
Utah 84057(US)

(72) Inventor: Pay, Clifford R.
2056 South 775 West Woods Cross
Utah 84087(US)

(74) Representative: Busse & Busse Patentanwälte
Postfach 1226 Grosshandelsring 6
D-4500 Osnabrück(DE)

(54) Multi-component cutting element using triangular, rectangular and higher order polyhedral-shaped polycrystalline diamond disks.

(57) A diamond cutter (18) for use in a drill bit having a geometric size and shape normally characterised by unleached diamond product, such as STRATAPAX diamond cutters, can be fabricated by assembling a plurality of prefabricated leached polycrystalline diamond (PCD) elements (14) in an array in a cutting slug (20). A cutting slug is formed of matrix (16) material which in one embodiment is impregnated with diamond grit. The cutting face of the cutting slug (20) is characterized by exposing at least one surface of each of the PCD elements (14) disposed therein. The diamond elements (14) may be set within the cutting slug (20) either in a compact touching array or in a spaced-apart relationship. More than one type of array may also be employed within a single cutting slug (20). The diamond elements (14) can assume a variety of polyhedral shapes such as triangular prismatic elements, rectangular elements, hexagonal elements and the like. The plurality of diamond elements (14) and the cutting slug (20) are fabricated using hot pressing or infiltration techniques (Fig. 2).





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EUROPEAN SEARCH REPORT

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EP 85 10 3002

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-3 902 864 (NIX) * Column 1, line 45 - column 2, line 21; column 3, line 23 - column 5, line 32 *	1-6, 9, 11-21	E 21 B 10/46
P, Y	EP-A-0 127 077 (NORTON) * Page 4, line 23 - page 5, line 24; page 14, line 18 - page 15, line 14; figures 2, 3, 7 *	1-6, 9, 11-21	
P, Y	US-A-4 452 325 (RADD) * Whole document *	1-6, 9, 11-21	
A	GB-A- 576 757 (NACHMANN) * Claim 1; figures *	8	TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
A	US-A-4 190 126 (TOKIWA) * Figure 7 *	10	E 21 B
A	DE-A-2 013 198 (KENNAMETAL) * Claims 1, 12; figures *	11, 12	
A	US-A-4 299 297 (LLOYD)		
A	US-A-4 244 432 (ROWLEY)		

The present search report has been drawn up for all claims

Place of search
THE HAGUE

Date of completion of the search
06-03-1986

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CATEGORY OF CITED DOCUMENT

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0156264

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EP 85 10 3002

DOCUMENTS CONSIDERED TO BE RELEVANT			Page 2
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
A	US-A-1 522 593 (PICKIN) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 06-03-1986	Examiner PAUCNIK B.
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