(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 355 436 A3**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **89113645.9**

(51) Int. Cl.[5]: **B28D 1/12, //B24D5/12**

(22) Date of filing: **25.07.89**

(30) Priority: **25.08.88 US 236580**

(43) Date of publication of application:
28.02.90 Bulletin 90/09

(84) Designated Contracting States:
AT BE CH DE ES FR GB IT LI SE

(88) Date of deferred publication of the search report:
05.09.90 Bulletin 90/36

(71) Applicant: **GENERAL ELECTRIC COMPANY**
1 River Road
Schenectady New York 12305(US)

(72) Inventor: **Clark, Thomas Clark**
2051 Highland View Drive
Powell Ohio 43065(US)

(74) Representative: **Catherine, Alain**
General Electric France Service de Propriété Industrielle 18 Rue Horace Vernet
F-92136 Issy-Les-Moulineaux Cedex(FR)

(54) Sawblade segments containing fine diamond or cubic boron nitride particles.

(57) The object of the invention is to provide saw blades having abrasive cutter segments which will wear non-uniformly so as to provide a concave wear surface and to thereby minimize blade path deviation, i.e. lateral vibration of the saw blade.

Figure 2 illustrates a preferred embodiment of a cutting segment for use on saw blades for cutting granite, marble, filled concrete and other hard materials. As can be seen, the concentration of diamond cutting elements (1) in the centre section (2) is preferably about the same as the concentration of diamond cutting elements (1) in the side sections or matrices (3). It should be appreciated, however, that a larger or smaller concentration of diamond cutting elements (1) can be employed in the centre section (2) without departing from the spirit or intended scope of the invention. For example, it is expected that in some applications it may be desirable that the concentration of diamond cutting elements (1) in the centre section (2) be greater than the concentration of diamond cutting elements (1) in the side sections (3). The most important consideration in the practice of the invention is that a non-uniform cutting rate be achieved by including an effective amount of abrasion-resistant particles (4) in side sections (3). Saw blade segments manufactured with abrasion resistant particles (4) in side sections (3) will exhibit concave wear and will form a ridge on stone workpiece (5) as shown in Figure 2. It is the presence of this ridge which minimize the ability of the saw blade to deviate from its cutting path.

Any suitable particles may be utilized as the abrasion-resistant particles (4). However, it has been found that diamond, CBN and tungsten carbide particles are particularly effective.

In general, the abrasion-resistant particles (4) should be less than about 80 mesh. Of course, the optimum mesh size for a particular application can be determined without undue experimentation. The concentration of abrasion-resistant particles can also vary depending upon the particular application, but a concentration of from about 0.10 to about 0.35 carats per cubic centimeter has been found to be effective.

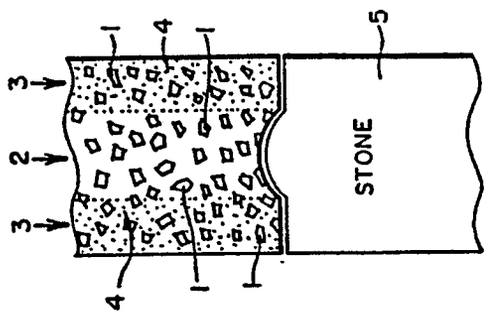

FIG. 2

EP 0 355 436 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 89 11 3645

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.5)
X	DE-A-2 438 601 (ERNST WINTER & SOHN GmbH) * Page 2, lines 7-14; page 3, lines 9-13; claims 1-6; figures 1-3 *	1-13	B 28 D 1/12 // B 24 D 5/12
X	US-A-3 203 774 (W.R. PRATT) * Column 2, lines 45-65; column 4, lines 1-13; figures 1-6 *	1-13	
X	DE-A-2 318 378 (GEORG BRONAT KG) * Page 4, lines 3-18; figures 1,2 *	1,4,8, 10,12, 13	
X	DE-A-1 652 480 (W. BÜTTNER) * Claims 1-4; figures 1,2 *	1,5,8, 12,13	
A	EP-A-0 169 081 (MEGADIAMOND INDUSTRIES INC.) * The whole document *	6,7,11	
A	DE-A-1 917 957 (G. PAHLITZSCH)		TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A	DE-A-3 204 276 (J. KÖNIG GmbH & CO. WERKZEUGFABRIK, STEININDUSTRIE- UND HANDWERKERBEDARF) * & US-A-4 505 251 (Cat. D)		B 28 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	06-06-1990	MOET H.J.K.

CATEGORY OF CITED DOCUMENTS

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

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

EPO FORM 1503 03.82 (P0401)