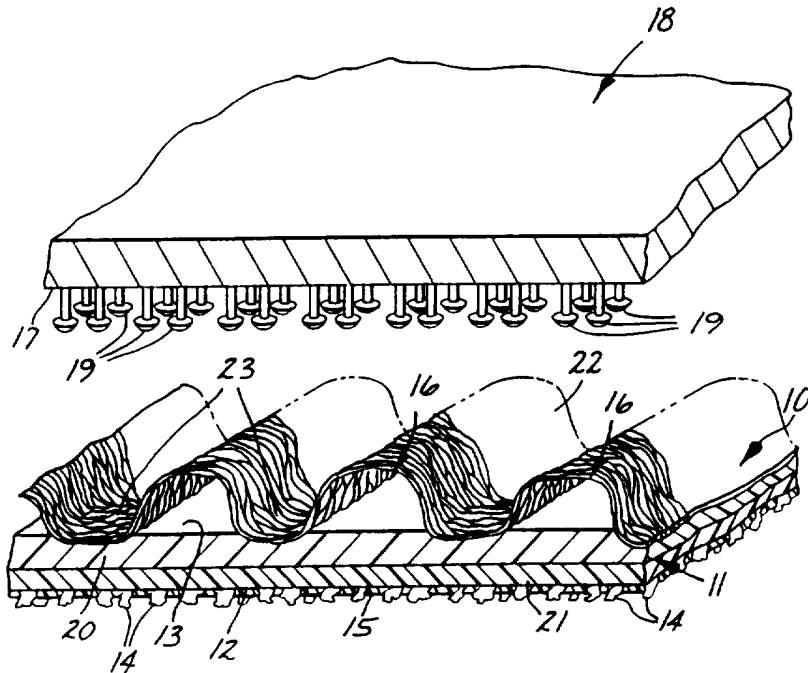




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁵ : B24D 3/00, 13/14, 9/08, B29C 53/26 A44B 18/00 // B29L 5:00, 16:00</p>	A3	<p>(11) International Publication Number: WO 93/03889</p> <p>(43) International Publication Date: 4 March 1993 (04.03.93)</p>
<p>(21) International Application Number: PCT/US92/06079</p> <p>(22) International Filing Date: 22 July 1992 (22.07.92)</p> <p>(30) Priority data: 748,038 21 August 1991 (21.08.91) US</p> <p>(71) Applicant: MINNESOTA MINING AND MANUFACTURING COMPANY [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).</p> <p>(72) Inventors: OTT, Ronald, L. ; GORMAN, Michael, R. ; BECKER, Dennis, L. ; FOLSKE, Donald, W. ; MELBYE, William, L. ; NESTEGARD, Susan, K. ; SLAMA, David, F. ; BARRY, John, L. ; MCMAHON, Jeffrey, R. ; P.O. Box 33427, Saint Paul, MN 55133-3427 (US).</p>		<p>(74) Agents: HUEBSCH, William, L. et al.; Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, MN 55133-3427 (US).</p> <p>(81) Designated States: AU, BR, CA, JP, KR, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 1 April 1993 (01.04.93)</p>

(54) Title: COATED ABRASIVE SHEET MATERIAL WITH LOOP MATERIAL FOR ATTACHMENT INCORPORATED THEREIN



(57) Abstract

A sheet of coated abrasive material including a backing having abrasive on one surface and loops projecting from its other surface by which the sheet of coated abrasive material can be held by hooks on the support surface of a pad. The backing comprises a polymeric bonding layer defining its rear surface. The sheet of coated abrasive material comprises a nonwoven sheet of longitudinally oriented fibers having anchor portions bonded in the polymeric bonding layer at spaced bonding locations, and acute portions projecting from the rear surface of the backing between the bonding locations to provide the loops.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 92/06079

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 B24D3/00; A44B18/00;	B24D13/14; //B29L5:00B29L16:00	B24D9/08; B29C53/26
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	B24D ; A44B ; B29D ; B29C B32B	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
Y A	PATENT ABSTRACTS OF JAPAN vol. 6, no. 36 (M-115)(914) 5 March 1982 & JP,A,56 152 584 (TOKYO KENSAKU TOISHI K.K.) 26 November 1981 see abstract	1, 3, 4, 6, 9, 11-15 16, 23, 24, 29, 33
Y A	DE,A,3 903 204 (PETER JÖST) 15 February 1990 see the whole document	1, 3, 4, 6, 9, 11-15 8, 29-32
A	US,A,4 761 318 (RONALD L. OTT ET AL.) 2 August 1988 cited in the application see the whole document	1-34

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<p>¹⁰ Special categories of cited documents:</p> <ul style="list-style-type: none"> "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 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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "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 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "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. "Δ" document member of the same patent family 		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search 08 FEBRUARY 1993	Date of Mailing of this International Search Report FEB 11 1993	
International Searching Authority EUROPEAN PATENT OFFICE	Signature of Authorized Officer MOLTO PINOL F.J.	

3

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	US,A,4 609 581 (RONALD L. OTT) 2 September 1986 cited in the application ---	1-34
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 92/06079

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see PCT/ISA/206 mailed on 17.12.92

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

US 9206079
SA 62974

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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Page 2

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