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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report*
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A. CLASSIFICATION OF SUBJECT MATTER***B24B 9/00(2006.01)i, B24B 41/06(2006.01)i, B24B 47/00(2006.01)i***

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 : B24B 9/00, B24B 41/06, B24B 47/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models since 1975.

Japanese utility models and applications for utility models since 1975.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

e-KIPASS(KIPO internal) "Keyword: disc, edge, abrade, oscillation"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 11-48109 A (SPEED FEMME INC. CO.) 23 February 1999 See claims; paragraphs 1, 13, 24; figures 2-4.	1-20
A	JP 10-328989 A (SPEED FEMME INC. CO.) 15 December 1998 See claims; paragraph 22; figure 1.	1-20
A	JP 11-104942 A (SPEED FEMME INC. CO.) 20 April 1999 See claims; paragraphs 16, 25; figure 1.	1-20
A	US 5868605 A (JOSEPH V. CESNA) 09 February 1999 See abstract; column 2, lines 28-39; figure 1.	1-20
A	US 6283837 B1 (ROBERT VORBUCHNER) 04 September 2001 See column 1, line 65-column 2, line 13; figure 1.	1-20



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"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 when the document is taken alone

"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

"&" document member of the same patent family

Date of the actual completion of the international search

07 DECEMBER 2007 (07.12.2007)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2007/070617

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP11048109A	23.02.1999	JP11048109A2 US6159081A	23.02.1999 12.12.2000
JP10328989A	15.12.1998	JP10328989A2	15.12.1998
JP11104942A	20.04.1999	JP11104942A2	20.04.1999
US5868605A	09.02.1999	GB2301544A GB2301544B2 GB2301544A1 GB9611397A0 JP9103955A2 KR1019970000448A SG50733A1	11.12.1996 14.07.1999 11.12.1996 07.08.1996 22.04.1997 21.01.1997 20.07.1998
US06283837B1	04.09.2001	DE19837858A1 EP00980739A2 EP00980739A3 JP2000061787A2 KR1020000017378A US6283837B1 US6283837BA	02.03.2000 23.02.2000 22.03.2000 29.02.2000 25.03.2000 04.09.2001 04.09.2001