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- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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[Continued on nextpage]

(54) **Title:** RAIL RE-PROFILING METHOD AND APPARATUS

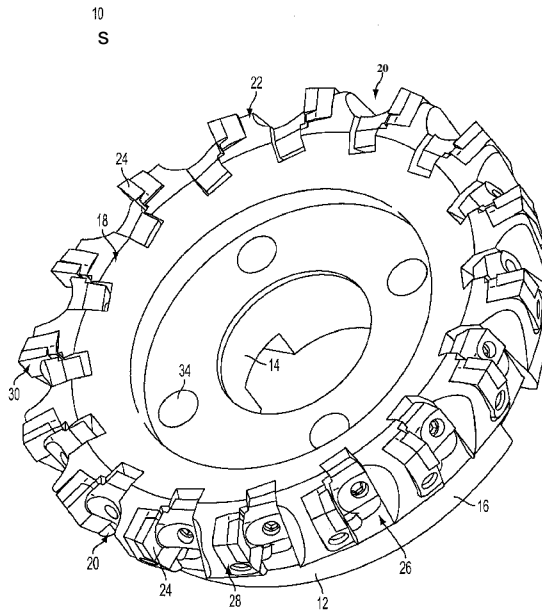


FIG. 1A

(57) **Abstract:** A method of milling a profile of a railway rail comprises: rotating a milling cutter including a plurality of face mounted cutting inserts mounted about a periphery thereof; milling a railway rail with cutting edges of the cutting inserts rotating in a predetermined plane corresponding to at least a portion of a desired rail profile while controlling the depth of cut of the cutting inserts; traversing the railway rail with the milling cutter while milling the railway rail; and controlling the speed of traverse of the milling cutter along the railway rail.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 14/26942

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - B24B 41/00 (2014.01)
CPC - E01B 31/17
 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 41/00 (2014.01)
CPC: E01B 31/17

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
IPC(8): B24B 23/00; B24B 27/08; B23C 1/00; B23C 3/00; B23C 1/20; B23D 1/00; B23D 3/00; B23D 5/00 (2014.01)
CPC: B24B 19/004; B23C 3/00; B230 9/0028; B23D79/00 USPC: 451/347, 409/183; 409/180; 409/298; 451/5

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 PatBase; ProQuest Dialog; Google Patents; Google Web; Google Scholar
 Search Terms: mill, milling, control%, depth, width, speed, mph, miles per hour, kph, kilometers per hour, kilometres per hour, railway, rail way, railroad, rail road, cutting insert%, rail%, inches, millimeters, millimetres, mm, depth of cut, speed of traverse, bumper ring

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X		1-12, 18
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Y	GB 2121710 A (Rungger). 04 January 1984 (04.01.1984). Figs. 1, 3, 4; Abstract; p 1, ln 73-86, 117-1 19; p 2, ln 22-42, 60-64, 67-72, 75-80, 102-1 13; p 3, ln 3-1 0, 48-59.	13- 17, 19-41
Y	US 3,699,843 A (Sweeny). 24 October 1972 (24.10.1972). Fig. 1; col 1, ln 56-64; col 2, ln 15-19.	13, 29
Y	US 5,145,295 A (Satran). 08 September 1992 (08.09.1992). Fig. 1; col 4, ln 40-49.	14- 15, 30-31
Y	US 3,344,496 A (Patkay). 03 October 1967 (03.10.1967). Col 3, ln 9-13.	16, 33
Y	US 4,583,893 A (Line). 22 April 1986 (22.04.1986). Fig. 1; col 1, ln 25-32; col 3, ln 25-30.	17, 19-41
Y	US 4,584,798 A (Rivoire) 29 April 1986 (29.04.1986). Figs. 3, 11A, 16; Abstract; col 3, ln 24-33; col 10, ln 1-46.	38-39, 41

Further documents are listed in the continuation of Box C. 1 1

* Special categories of cited documents.
 "A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent but published on or after the international filing date
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 "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

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