## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

# (19) World Intellectual Property Organization International Bureau



# 

# (43) International Publication Date 26 February 2009 (26.02.2009)

# (10) International Publication Number WO 2009/025997 A3

- (51) International Patent Classification: *E01F 15/00* (2006.01)
- (21) International Application Number:

PCT/US2008/072318

- (22) International Filing Date: 6 August 2008 (06.08.2008)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:

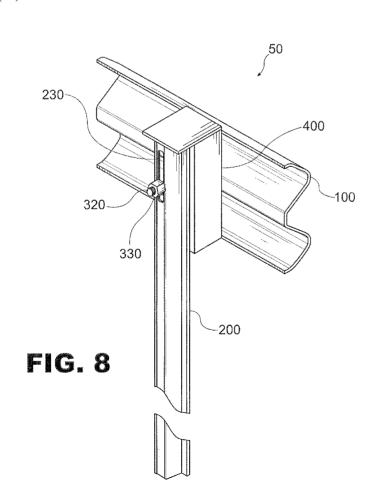
11/842,736 21 August 2007 (21.08.2007) US 12/028,632 8 February 2008 (08.02.2008) US

- (71) Applicant (for all designated States except US): NUCOR CORPORATION [US/US]; 1915 Rexford Road, Charlotte, NC 28211 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): CONWAY, Steven, J. [US/US]; 1114 Greenlea Drive, Marion, OH 43302 (US). MAUER, Frederick [US/US]; 4 Caswell Drive, Greenland, NH 03840 (US). JAMES, Dallas [NZ/NZ]; 8 Paul Matthew Road, Albany, Auckland, 1330 (NZ).

- (74) Agents: NABORS, William, S. et al.; Hahn Loeser & Parks, LLP, One GOJO Plaza, Suite 300, Akron, OH 44311-1076 (US).
- (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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,

[Continued on next page]

### (54) Title: ROADWAY GUARDRAIL SYSTEM



(57) Abstract: A roadway guardrail system including a rail, a plurality of support posts, and a plurality of fasteners assembly to redirect an impacting vehicle and dissipate a portion of the impacting vehicle's energy. Block-outs may be positioned in between the rail and support posts. A plurality of support posts each includes a slot extending along its length aligning with apertures in the rail and engaging with the rail through the apertures with fasteners including reinforcing members slidable along the slots in the posts. Alternatively, the rail has a plurality of laterally extending slots aligning with apertures in support posts and engaging with the support posts through the apertures with fasteners including reinforcing members slidable along the slots.



# WO 2009/025997 A3



NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

 before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

## **Published:**

with international search report

(88) Date of publication of the international search report:

2 April 2009

### INTERNATIONAL SEARCH REPORT

International application No. PCT/US2008/072318

#### CLASSIFICATION OF SUBJECT MATTER

## E01F 15/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

### FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 8: E01F 15/00, 15/02

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)

eKIPASS(KIPO internal) & keywords: " guard rail", " block"

### DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2006-0026337 A (YEONGSIN CO.,LTD.) 23 March 2006 See claims 1 - 4 and figures 1-5b.	1 - 40
Y	KR 20-1998-0008281 U (KIM, INN-SIK) 30 April 1998 See claim 1 and figures 1- 4.	1- 40
Y	US 7234687 B2 (DAVID T. KING) 26 June 2007 See column 2, line 29 - column 14, line 58 and figures 1 - 16.	13- 40
A	JP 2005-120577 A (AZUMA CO., LTD.) 12 May 2005 See claims 1 - 5 and figures 1- 12.	1 - 40

Further documents are listed in the continuation of	f 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
- earlier application or patent but published on or after the international filing date
- document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
- document referring to an oral disclosure, use, exhibition or other
- document published prior to the international filing date but later than the priority date claimed
- 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
- 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
- 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

18 FEBRUARY 2009 (18.02.2009)

document member of the same patent family

Date of the actual completion of the international search

18 FEBRUARY 2009 (18.02.2009)

Date of mailing of the international search report

Authorized officer

Name and mailing address of the ISA/KR



Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Seogu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

KIM, Jin Young

Telephone No. 82-42-481-8220



# INTERNATIONAL SEARCH REPORT

International application No.

# PCT/US2008/072318

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
This application includes the following groups of inventions:
Group 1: claims 1-6 directed to a roadway guardrail system; Group 2: claims 7-12 directed to a roadway guardrail system; Group 3: claims 13-25 directed to a roadway guardrail system; Group 4: claims 26-34 directed to a roadway guardrail system; and Group 5: claims 35-40 directed to a roadway guardrail system.
The common technical feature among Groups 1-5 is a guardrail system for absorbing shocks comprising a support post and a guardrail. This feature is not considered the special technical feature over the prior art. Hence, there is a lack of unity "a posteriori" (PCT Rules 13.1 and 13.2).
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 and, where applicable, the payment of a protest fee.  The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.  No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

# PCT/US2008/072318

			1 C 1/U32008/0/2518
Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 10-2006-0026337 A	23.03.2006	None	
KR 20-1998-0008281 U	30.04.1998	None	
US 7234687 B2	26.06.2007	None	
JP 2005-120577 A	12.05.2005	None	