



(11) **EP 2 365 108 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
21.09.2011 Bulletin 2011/38

(51) Int Cl.:
C23C 28/00 ^(2006.01) **C23C 2/26** ^(2006.01)
C23C 30/00 ^(2006.01)

(43) Date of publication A2:
14.09.2011 Bulletin 2011/37

(21) Application number: **11169291.9**

(22) Date of filing: **11.12.2006**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR**

(30) Priority: **21.12.2005 EP 05112555**

(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
06829620.1 / 1 963 543

(71) Applicant: **NV Bekaert SA**
8550 Zwevegem (BE)

(72) Inventors:
• **Vanbrabant, Johan**
8550 Zwevegem (BE)

- **Vandenbranden, Wouter**
9070 Destelbergen (BE)
- **Lefebvre, Dominique**
8582 Outrijve (BE)
- **Bruyneel, Paul**
8710 Ooigem (BE)
- **Vancompernelle, Stijn**
9000 Gent (BE)

(74) Representative: **Seynhaeve, Geert Filiep**
NV Bekaert SA
D.I.E.
Bekaertstraat 2
8550 Zwevegem (BE)

(54) **A steel wire rope for use in a drive system**

(57) A steel wire rope for use in a drive system such as found on a sliding vehicle door or window elevator is revealed. Particular about this rope is that it has a remarkable corrosion resistance in combination with a reduced wear of guiding pieces around which the wire rope is guided. The corrosion resistance is obtained by spreading magnesium oxide particles over the zinc or zinc alloy coated steel wires and bringing those particles in contact with the coating. The reduced wear is obtained by spreading fine abrasive particles over the coating. The spreading and contacting can be achieved by means of

a liquid carrier such as an aliphatic mineral oil that is commonly used as the lubricant for such steel wire ropes. The magnesium oxide ensures an equal or better corrosion resistance even when reducing the thickness of the zinc coating. Reducing the thickness of the zinc coating increases the strength of the steel wire rope, while maintaining the diameter of the cord. The abrasive particles ensure a polishing of the wire leading to a smoother surface and reduced wear of the guiding pieces.

EP 2 365 108 A3



EUROPEAN SEARCH REPORT

Application Number
EP 11 16 9291

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	WO 03/048403 A1 (CT DE RECH S METALLURG ASBL CE [BE]; LE CRAZ SEBASTIEN [BE]) 12 June 2003 (2003-06-12) * page 12, paragraph 0068 - page 13, paragraph 0071; claims 1,2,3,12,27 *	1,8	INV. C23C28/00 C23C2/26 C23C30/00
Y	JP 63 195282 A (NIPPON STEEL CORP) 12 August 1988 (1988-08-12) * abstract *	1,8	
A	DE 42 02 625 A1 (NIHON PARKERIZING [JP]) 6 August 1992 (1992-08-06) * page 2, line 43 - line 60 * * page 3, line 32 - line 40 * * page 3, line 68 - page 4, line 34 * * page 4, line 66 - page 5, line 3; claims 1-7 *	1	
A	EP 1 253 218 A1 (NIPPON STEEL CORP [JP]) 30 October 2002 (2002-10-30) * page 2, paragraphs 0001, 0002, 0007 * * page 3, line 6 - line 8; claims 1,3 *	1	
A	JP 8 277456 A (NIPPON STEEL CORP) 22 October 1996 (1996-10-22) * abstract *	1	
A	EP 0 508 479 A2 (KAWASAKI STEEL CO [JP]) 14 October 1992 (1992-10-14) * page 2, line 36 - line 39 * * page 3, line 52 - page 4, line 26; claim 1 *	1	TECHNICAL FIELDS SEARCHED (IPC) C23C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 17 August 2011	Examiner Elsen, Daniel
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

1
EPO FORM 1503 03.82 (P04C01)

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

EP 11 16 9291

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

17-08-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03048403 A1	12-06-2003	AT 364731 T	15-07-2007
		AU 2002335945 A1	17-06-2003
		BE 1014525 A3	02-12-2003
		BR 0213920 A	19-04-2005
		CA 2465273 A1	12-06-2003
		DE 60220706 T2	11-10-2007
		EP 1451383 A1	01-09-2004
		ES 2287315 T3	16-12-2007
		JP 4137793 B2	20-08-2008
		JP 2005513258 A	12-05-2005
		KR 20050039747 A	29-04-2005

JP 63195282 A	12-08-1988	JP 1692377 C	27-08-1992
		JP 3055519 B	23-08-1991

DE 4202625 A1	06-08-1992	US 5283131 A	01-02-1994

EP 1253218 A1	30-10-2002	AU 771501 B2	25-03-2004
		AU 1302901 A	06-06-2001
		CA 2389033 A1	17-05-2001
		ES 2311476 T3	16-02-2009
		WO 0134873 A1	17-05-2001
		JP 2001131763 A	15-05-2001
		US 6720078 B1	13-04-2004

JP 8277456 A	22-10-1996	JP 3100861 B2	23-10-2000

EP 0508479 A2	14-10-1992	CA 2065626 A1	11-10-1992
		DE 69205612 D1	30-11-1995
		DE 69205612 T2	04-04-1996
		US 5972522 A	26-10-1999
