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(54) **Beryllium-Copper conductor**

(57) A process is provided for forming an age hardened wire for use as an electrical conductor, which wire is formed from a copper base alloy consisting of from 1.25 to 3.6 wt% nickel, from 0.25 to 0.45 beryllium, and the balance copper and impurities which do not affect the properties of said alloy, with the nickel and beryllium being present in the copper base alloy in a ratio of nickel to beryllium from 5.0 to 8.0. The process comprises the steps of providing a copper base alloy material consisting

of from 1.25 to 3.6 wt% nickel, from 0.25 to 0.45 beryllium, and the balance copper and impurities which do not affect the properties of said alloy, which nickel and beryllium are present in the copper base alloy in a ratio of nickel to beryllium from 5.0 to 8.0, cold working the material in a single step; and age hardening the cold worked material in a single step to form a wire in a cold worked and aged hardened condition having an electrical conductivity of at least about 60% IACS.

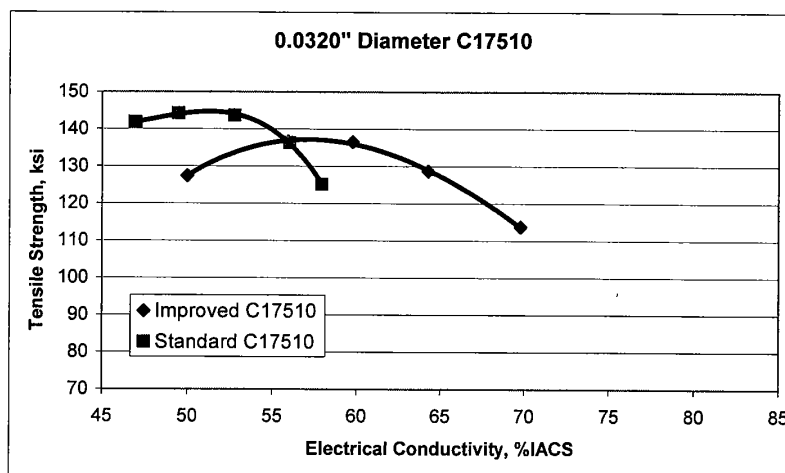


FIG. 1



EUROPEAN SEARCH REPORT

Application Number
EP 08 15 1504

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 10 296398 A (NGK INSULATORS LTD) 10 November 1998 (1998-11-10) * the whole document *	1-14	INV. C22C9/06 C22F1/08 H01B1/02
X	US 2 289 593 A (SAWYER CHARLES B ET AL) 14 July 1942 (1942-07-14) * claims 1-10 * * page 1, column 1, paragraph 2 - page 4, column 1, paragraph 4 *	1-5,7-14	
X,D	US 4 594 116 A (INAGAKI TOM [US]) 10 June 1986 (1986-06-10) * claims 1-5 *	8-14	
A	* examples 1-2 *	1-7	
X	US 4 838 959 A (INAGAKI TOM [US]) 13 June 1989 (1989-06-13) * claim 1 *	8-14	
A	* examples 1-2 *	1-7	
X	US 4 179 314 A (WIKLE KEITH G [US]) 18 December 1979 (1979-12-18) * claims 1-21 *	8-14	TECHNICAL FIELDS SEARCHED (IPC) C22C C22F H01B
A	* example 2 *	1-7	
A	EP 0 271 991 A2 (NGK INSULATORS LTD [JP]) 22 June 1988 (1988-06-22) * claims 1-6 * * tables 1-2 *	1-14	
A	US 6 059 905 A (FRIEDMAN SAM [US] ET AL) 9 May 2000 (2000-05-09) * claims 1-9 * * tables I-VIII *	1-14	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 2 March 2012	Examiner Vlassi, Eleni
CATEGORY OF CITED DOCUMENTS 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 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			

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EUROPEAN SEARCH REPORT

Application Number
EP 08 15 1504

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 4 692 192 A (IKUSHIMA KAZUO [JP] ET AL) 8 September 1987 (1987-09-08) * claims 1-15 * * tables 1-6 *	1-14	
A	US 5 074 922 A (HIRAMITSU HIROYUKI [JP] ET AL) 24 December 1991 (1991-12-24) * claims 1-9 * * tables 1-3 *	1-14	
A	JP 62 199743 A (NGK INSULATORS LTD) 3 September 1987 (1987-09-03) * the whole document *	1-14	
A	JP 1 165736 A (DOWA MINING CO) 29 June 1989 (1989-06-29) * the whole document *	1-14	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 2 March 2012	Examiner Vlassi, Eleni
CATEGORY OF CITED DOCUMENTS 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 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			

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

EP 08 15 1504

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
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02-03-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 10296398 A	10-11-1998	NONE	
US 2289593 A	14-07-1942	NONE	
US 4594116 A	10-06-1986	NONE	
US 4838959 A	13-06-1989	NONE	
US 4179314 A	18-12-1979	DE 2967459 D1	04-07-1985
		EP 0020724 A1	07-01-1981
		JP 63058908 B	17-11-1988
		JP S55501145 A	18-12-1980
		US 4179314 A	18-12-1979
		WO 8001169 A1	12-06-1980
EP 0271991 A2	22-06-1988	DE 3773470 D1	07-11-1991
		EP 0271991 A2	22-06-1988
		US 4792365 A	20-12-1988
US 6059905 A	09-05-2000	NONE	
US 4692192 A	08-09-1987	DE 3575230 D1	08-02-1990
		EP 0180443 A2	07-05-1986
		US 4692192 A	08-09-1987
US 5074922 A	24-12-1991	JP 3140444 A	14-06-1991
		JP 8003141 B	17-01-1996
		US 5074922 A	24-12-1991
JP 62199743 A	03-09-1987	JP 1689667 C	27-08-1992
		JP 3056295 B	27-08-1991
		JP 62199743 A	03-09-1987
JP 1165736 A	29-06-1989	JP 1165736 A	29-06-1989
		JP 1688518 C	11-08-1992
		JP 3055532 B	23-08-1991