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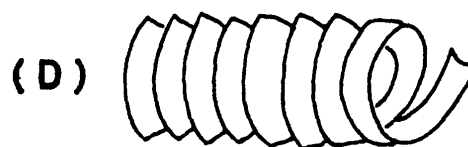
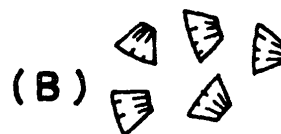
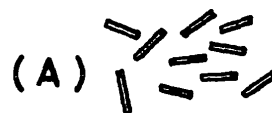
(62) Document number(s) of the earlier application(s) in
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(54) **Lead-free, free-cutting copper alloys**

(57) The present invention relates to lead free, free cutting copper alloys and methods of their manufacture. In particular, the present invention is directed to a lead-free, free-cutting copper alloy which comprises 62 to 78 percent, by weight, of copper; 2.5 to 4.5 percent, by weight, of silicon; at least one element selected from among 0.3 to 3.0 percent, by weight, of tin, 0.2 to 2.5 percent, by weight, of aluminium, and 0.02 to 0.25 percent, by weight, of phosphorous; and at least one element selected from among 0.7 to 3.5 percent, by weight, of manganese and 0.7 to 3.5 percent, by weight, of nickel; and the remaining percent, by weight, of zinc and wherein the metal structure of the free cutting copper alloy has at least one phase selected from the γ (gamma) phase and the κ (kappa) phase.

FIGURE 1





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EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 04, 31 March 1998 (1998-03-31) -& JP 09 316570 A (CHUETSU GOKIN CHUKO KK), 9 December 1997 (1997-12-09) * abstract * * page 4; examples; table 1 *	1-8	C22C9/04 C22F1/08
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A	PATENT ABSTRACTS OF JAPAN vol. 015, no. 227 (C-0839), 10 June 1991 (1991-06-10) -& JP 03 068731 A (NIPPON MINING CO LTD), 25 March 1991 (1991-03-25) * abstract * * page 3; example 12; table 1 *	1-8	
A	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 10, 31 October 1997 (1997-10-31) -& JP 09 143598 A (CHUETSU GOKIN CHUKO KK), 3 June 1997 (1997-06-03) * abstract * * page 3; example 2; table 1 *	1-8	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) C22C C22F
Place of search Munich		Date of completion of the search 8 September 2005	Examiner Patton, G
<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>			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 01 7189

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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