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(72) Inventor: **Oishi, Keiichiro**  
**Sakai-shi Osaka 590-0906 (JP)**

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(74) Representative:  
**Brown, Fraser Gregory James et al**  
**fJ Cleveland**  
**40-43 Chancery Lane**  
**London WC2A 1JQ (GB)**

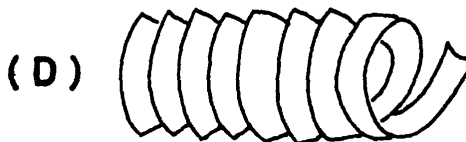
(62) Document number(s) of the earlier application(s) in  
accordance with Art. 76 EPC:  
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(71) Applicant: **Sambo Copper Alloy Co., Ltd**  
**Osaka 590-0906 (JP)**

(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 70 to 80 percent, by weight, of copper; 1.8 to 3.5 percent, by weight, of silicon; and at least one element selected from among 0.3 to 3.5 percent, by weight, of tin, 1.0 to 3.5 percent, by weight, of aluminium, and 0.02 to 0.25 percent, by weight, of phosphorous; 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  $\gamma$  (gamma) phase and the  $\kappa$  (kappa) phase.

FIGURE 1



EP 1 600 516 A3



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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 8 September 2005	Examiner Patton, G
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			

EPO FORM 1503 03/82 (P/04/001)



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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EPO FORM P0489

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