

Title (en)

Elements of slide fasteners and accessories made of nickel-free white copper alloy

Title (de)

Reissverschlüsselementen und Zubehörteilen aus nickelfreie Weisskupferlegierung

Title (fr)

Éléments de fermeture à glissière et accessoires en alliage blanc de cuivre sans nickel

Publication

EP 1306453 A1 20030502 (EN)

Application

EP 02023644 A 20021021

Priority

JP 2001329089 A 20011026

Abstract (en)

An Ni-free white copper alloy of formula $\text{Cu}_a\text{Zn}_b\text{Ti}_c$ or $\text{Cu}_a\text{Zn}_b\text{Ti}_c\text{X}_d$ wherein X is at least one element selected from the group consisting of Al, Sn, Ag and Mn, b, c and d are, in mass %, $0.5 \leq b \leq 30$, $1 \leq c < 7$ and $0.1 < d < 4$, and a is the balance, with unavoidable elements, and also a producing method therefor, comprising: preparing a material alloy for the above white copper alloy; heating the alloy to 700 to 885 DEG C; and cooling the alloy. The Ni-free white copper alloy has a strength and excellent hardness comparable to those of nickel silver, as well as excellent workability, corrosion resistance and whiteness in addition to ductility, and is free from an Ni allergy problem because of containing no nickel, and moreover tends not to cause needle detectors to malfunction.

IPC 1-7

C22C 9/04

IPC 8 full level

C22C 9/00 (2006.01); **C22C 9/01** (2006.01); **C22C 9/02** (2006.01); **C22C 9/04** (2006.01); **C22F 1/00** (2006.01); **C22F 1/08** (2006.01)

CPC (source: EP KR US)

C22C 9/04 (2013.01 - EP KR US); **C22F 1/08** (2013.01 - EP US)

Citation (search report)

- [XPA] US 6313064 B1 20011106 - MIYAFUJI MOTOHISA [JP], et al
- [X] US 3703367 A 19721121 - COCKS FRANKLIN H
- [X] PATENT ABSTRACTS OF JAPAN vol. 1996, no. 02 29 February 1996 (1996-02-29)
- [X] PATENT ABSTRACTS OF JAPAN vol. 016, no. 566 (C - 1009) 8 December 1992 (1992-12-08)
- [XA] PATENT ABSTRACTS OF JAPAN vol. 013, no. 595 (C - 672) 27 December 1989 (1989-12-27)
- [A] PATENT ABSTRACTS OF JAPAN vol. 018, no. 128 (C - 1174) 2 March 1994 (1994-03-02) & DATABASE WPI Derwent World Patents Index; AN 1992-313570, XP002229070

Cited by

WO2010030597A2; EP2161349A1

Designated contracting state (EPC)

DE FI FR GB IT

DOCDB simple family (publication)

EP 1306453 A1 20030502; **EP 1306453 B1 20050112**; CN 100462459 C 20090218; CN 1414126 A 20030430; DE 60202576 D1 20050217; DE 60202576 T2 20051229; JP 2003129151 A 20030508; JP 3915889 B2 20070516; KR 100507793 B1 20050811; KR 20030035921 A 20030509; TW 573026 B 20040121; US 2003091461 A1 20030515

DOCDB simple family (application)

EP 02023644 A 20021021; CN 02151489 A 20021025; DE 60202576 T 20021021; JP 2001329089 A 20011026; KR 20020063923 A 20021018; TW 91124222 A 20021021; US 27910802 A 20021024