

Title (en)

Method and apparatus for manufacturing a multilayered composite metallic product.

Title (de)

Verfahren und Vorrichtung zur Herstellung eines mehrfachbeschichteten Verbundmetallkörpers.

Title (fr)

Procédé et dispositif de fabrication d'un produit composite polymétallique multicouches.

Publication

EP 0348300 A1 19891227 (FR)

Application

EP 89401755 A 19890621

Priority

FR 8808311 A 19880621

Abstract (en)

The invention relates to a method for manufacturing a composite metallic product having at least two different metallic layers, characterised in that: - an insert (5) covered with a layer of paraffin is suspended, the insert constituting the base metal in an ingot mould (1) homothetic to the said insert, - and after bottom casting, at a given temperature and rising speed, an added metal covering the entire insert (5) to obtain a metallic ingot, the ingot surrounded by the added metal is subjected to a hot- rolling process, and then, if necessary, a cold-rolling process until the product is obtained, under customary rolling conditions, - then an annealing is carried out, adapted to the two metallic layers, to homogenise the mechanical characteristics of the core and of the surface of the product. The invention also relates to an apparatus for manufacturing a composite metallic product.

IPC 1-7

B22D 7/02

IPC 8 full level

B22D 7/02 (2006.01)

CPC (source: EP)

B22D 7/02 (2013.01)

Citation (search report)

- [X] US 4102033 A 19780725 - EMI TOSHIHIKO, et al
- [X] US 2464163 A 19490308 - WEESNER CARL W, et al
- [Y] DE 2049757 A1 19710415 - LOIRE ATEL FORGES
- [Y] LU 60289 A1 19700611
- [Y] DE 329502 C 19201126 - FELTEN & GUILLEAUME CARLSWERK
- [Y] FR 429942 A 19111004 - SOCIETE DES FONDERIES FORGES ET ACIERIES DE SAINT- [FR]
- [A] DE 650752 C 19370930 - UNION STEEL CORP OF S A LTD
- [A] EP 0256609 A2 19880224 - SASAKI NOBUYOSHI

Cited by

CN104353793A; CN108655351A; WO2011110137A1; US8746322B2

Designated contracting state (EPC)

AT BE CH DE ES FR GB GR IT LI LU NL SE

DOCDB simple family (publication)

EP 0348300 A1 19891227; EP 0348300 B1 19920826; AT E79792 T1 19920915; DE 68902599 D1 19921001; DE 68902599 T2 19930415;
ES 2034690 T3 19930401; FR 2632977 A1 19891222

DOCDB simple family (application)

EP 89401755 A 19890621; AT 89401755 T 19890621; DE 68902599 T 19890621; ES 89401755 T 19890621; FR 8808311 A 19880621