

Title (en)
METHOD OF CONTINUOUS VACUUM CARBURIZATION OF METAL WIRE, METAL BAND OR METAL PIPE AND APPARATUS THEREFOR

Title (de)
VERFAHREN ZUR KONTINUIERLICHEN VAKUUMAUFKOHLUNG VON METALLDRAHT, -BAND ODER -ROHREN UND VORRICHTUNG DAFÜR

Title (fr)
PROCEDE DE CARBURATION SOUS VIDE CONTINUE D'UN CABLE METALLIQUE, D'UNE BANDE METALLIQUE OU D'UN TUYAU METALLIQUE, ET APPAREIL ASSOCIE

Publication
EP 1642995 A4 20081224 (EN)

Application
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Priority
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Abstract (en)
[origin: EP1642995A1] A continuous vacuum carburizing process carburizes material such as a steel wire 7 with a carbon content equal to or less than a desired carbon content by passing it under reduced pressure continuously through a carburizing atmosphere 5 with constant pressure and constant gas composition. A continuous vacuum carburizing apparatus for carrying out this process has at least one furnace core tube 1, 11, or 12 and a feeding/taking-up mechanism 13, 14 for the steel wire 7 in a vacuum container 1. Carburizing medium gas is supplied to the furnace core tube 1 via pipes 2, 4 to form the carburizing atmosphere 5. A heater 10 heats the furnace core tube 1, thereby activating carbon of the carburizing medium gas. In this way, material having a small thickness of, for example, 0.02 mm to 3 mm is carburized with less variation in the amount of carburization and no surface oxidation or sooting.

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• [X] JP 2003155552 A 20030530 - JH CORP
• [A] JP H03247749 A 19911105 - SUMITOMO HEAVY INDUSTRIES
• [A] JP H0387350 A 19910412 - SHOWA ELECTRIC WIRE & CABLE CO
• [A] JP 2000355755 A 20001226 - NACHI FUJIKOSHI CORP
• [A] JP 2003129215 A 20030508 - TANAKA KK, et al
• [A] JP S58130270 A 19830803 - SUGIYAMA MICHIO
• [A] US 2003020214 A1 20030130 - POOR RALPH PAUL [US], et al
• See references of WO 2005003400A1

Cited by
CN110172663A; CN106498112A; CN110475896A; EP3611286A4; US10156006B2; US10934611B2; US9617632B2; US10246766B2; US11035032B2

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