

Title (en)

TREATMENT DEVICE AND TREATMENT METHOD FOR PICKLING AND PHOSPHATING METAL PARTS

Title (de)

BEHANDLUNGSVORRICHTUNG UND BEHANDLUNGSVERFAHREN ZUM BEIZEN UND PHOSPHATIEREN VON METALLTEILEN

Title (fr)

DISPOSITIF ET PROCÉDÉ DE TRAITEMENT POUR DÉCAPER ET PHOSPHATER DES PIÈCES MÉTALLIQUES

Publication

**EP 3137651 A1 20170308 (DE)**

Application

**EP 15702495 A 20150204**

Priority

- DE 102014006315 A 20140430
- EP 2015052326 W 20150204

Abstract (en)

[origin: CA2947370A1] The invention relates to a treatment device (1) for the single-stage treatment of a metal object (2) to be treated. The treatment has at least the steps of pickling and phosphating the object (2) to be treated. The treatment device (1) comprises at least the following devices: a treatment container (4) for receiving the object (2) to be treated and for receiving a flowable treatment substance (6); and a pump device (10) for exchanging at least a fraction of the treatment substance (6). The treatment substance (6) flows around at least one part of the object (2) to be treated, in particular the entire object (2) to be treated. The treatment substance (6) is a phosphor- or phosphate-containing solution, in particular phosphoric acid. The phosphor- or phosphate-containing solution consists partly of water and partly of a reaction substance, and the reaction substance consists of phosphor or a phosphate and an additional treatment effect-improving substance. The proportion of the phosphor or the phosphate in the reaction substance is at least 95%, and the reaction substance does not have a salt acid or sulfuric acid content.

IPC 8 full level

**C23C 22/00** (2006.01); **C23C 22/08** (2006.01); **C23G 1/00** (2006.01); **C23G 1/02** (2006.01); **C23G 3/00** (2006.01)

CPC (source: EP KR RU US)

**C23C 22/00** (2013.01 - EP KR RU US); **C23C 22/08** (2013.01 - EP KR RU US); **C23C 22/73** (2013.01 - RU US); **C23C 22/78** (2013.01 - KR); **C23F 4/00** (2013.01 - RU US); **C23F 11/04** (2013.01 - RU US); **C23G 1/00** (2013.01 - EP KR RU US); **C23G 1/02** (2013.01 - EP KR RU US); **C23G 1/06** (2013.01 - EP RU US); **C23G 3/00** (2013.01 - EP KR RU US)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**DE 102015005521 A1 20151105**; **DE 102015005521 B4 20170209**; BR 112016025403 A2 20170815; CA 2947370 A1 20151105; CL 2016002754 A1 20170203; CN 106460185 A 20170222; CN 106460185 B 20200221; EP 3137651 A1 20170308; EP 3137651 B1 20181219; JP 2017514997 A 20170608; KR 20160149226 A 20161227; MX 2016014200 A 20170503; RU 2016146713 A 20180530; RU 2016146713 A3 20181026; RU 2691443 C2 20190613; US 10513784 B2 20191224; US 2017051414 A1 20170223; WO 2015165600 A1 20151105

DOCDB simple family (application)

**DE 102015005521 A 20150430**; BR 112016025403 A 20150204; CA 2947370 A 20150204; CL 2016002754 A 20161028; CN 201580022806 A 20150204; EP 15702495 A 20150204; EP 2015052326 W 20150204; JP 2016565183 A 20150204; KR 20167032136 A 20150204; MX 2016014200 A 20150204; RU 2016146713 A 20150204; US 201515307957 A 20150204