

Title (en)

TREATMENT DEVICE COMPRISING A SWIRLING APPARATUS FOR PICKLING AND PHOSPHATING METAL PARTS

Title (de)

BEHANDLUNGSVORRICHTUNG MIT VERWIRBELUNGSEINRICHTUNG ZUM BEIZEN UND PHOSPHATIEREN VON METALLTEILEN

Title (fr)

DISPOSITIF DE TRAITEMENT UTILISANT UN DISPOSITIF DE TOURBILLONNEMENT POUR EFFECTUER LE DÉCAPAGE ET LA PHOSPHATATION DE PIÈCES MÉTALLIQUES

Publication

EP 3371340 B1 20191023 (DE)

Application

EP 16793846 A 20161107

Priority

- DE 102015014311 A 20151105
- EP 2016076865 W 20161107

Abstract (en)

[origin: WO2017077119A1] The invention relates to a treatment device (1) for the single-stage treatment of a metal object (2) to be treated, wherein the treatment comprises at least the pickling and the phosphating of the object (2) to be treated, wherein the treatment device (1) comprises at least a treatment container (4) for holding the object (2) to be treated and for holding a flowable treatment substance (6), a pumping apparatus (10) for circulating at least a portion of the treatment substance (6), wherein the treatment substance (6) flows around at least part of the object (2) to be treated, in particular the entire object (2) to be treated, wherein the treatment substance (6) is a phosphorus- or phosphate-containing solution, in particular phosphoric acid, wherein the phosphorus- or phosphate-containing solution consists of water and of a reaction substance, and a swirling apparatus (70) for swirling up contaminants, in particular solid particles, deposited in the treatment substance, wherein the swirling apparatus (70) has at least a fluid-providing apparatus (72) and a fluid-conducting element (74) having a plurality of outlet openings (76) for supplying a swirling fluid to the treatment substance (6), and wherein the swirling fluid can be supplied to the fluid-conducting element (74) by the fluid-providing apparatus (72) at an overpressure of, in particular, more than 2 bar.

IPC 8 full level

C23C 22/00 (2006.01); **C23C 22/08** (2006.01); **C23G 1/00** (2006.01); **C23G 1/06** (2006.01); **C23G 3/00** (2006.01)

CPC (source: EP)

C23C 22/00 (2013.01); **C23C 22/08** (2013.01); **C23G 1/00** (2013.01); **C23G 1/06** (2013.01); **C23G 3/00** (2013.01)

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

DOCDB simple family (publication)

WO 2017077119 A1 20170511; CN 108291308 A 20180717; DE 102015014311 A1 20170511; EP 3371340 A1 20180912; EP 3371340 B1 20191023; HK 1257357 A1 20191018

DOCDB simple family (application)

EP 2016076865 W 20161107; CN 201680064642 A 20161107; DE 102015014311 A 20151105; EP 16793846 A 20161107; HK 18116565 A 20181225