

Title (en)

METHOD FOR MANUFACTURING METALLIC PIPE, AND METHOD FOR WASHING METALLIC PIPE

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES METALLROHRES UND VERFAHREN ZUM WASCHEN EINES METALLROHRES

Title (fr)

PROCÉDÉ DESTINÉ À FABRIQUER UN TUYAU MÉTALLIQUE, ET PROCÉDÉ DESTINÉ À LAVER LE TUYAU MÉTALLIQUE

Publication

**EP 3862466 A1 20210811 (EN)**

Application

**EP 19868663 A 20190926**

Priority

- JP 2018189325 A 20181004
- JP 2019037792 W 20190926

Abstract (en)

An object of the present disclosure is to achieve both energy conservation (low cost) and good cleaning performance in cleaning a metal tube with a chemical conversion coating film and a lubricating film on its surface. A manufacturing method of a metal tube (P) includes a preparing step (S1) of preparing a metallic material tube; a lubricating step (S2) of forming a chemical conversion coating film on a surface of the material tube and forming a lubricating film on the chemical conversion coating film; a cold drawing step (S3) of applying cold drawing to the material tube with the chemical conversion coating film and the lubricating film thereon to form the material tube into a metal tube (P) with specified dimensions; and a cleaning step (S4) of cleaning the metal tube (P) to remove the chemical conversion coating film and the lubricating film. The cleaning step (S4) includes: a step (S41) of soaking the metal tube (P) in a non-highly-heated alkaline degreasing fluid in an alkaline cleaning tank (11); and a step (S42) of soaking the metal tube (P) after soaked in the alkaline degreasing fluid in a washing liquid in an ultrasonic washing tank (21) while radiating ultrasonic waves into the washing liquid and generating fine bubbles in the washing liquid.

IPC 8 full level

**C23G 3/04** (2006.01); **B08B 3/12** (2006.01)

CPC (source: EP KR)

**B08B 3/12** (2013.01 - EP); **B08B 9/023** (2013.01 - EP); **B08B 9/027** (2013.01 - EP); **B21C 43/02** (2013.01 - EP KR); **C23C 22/83** (2013.01 - EP); **C23G 1/00** (2013.01 - EP); **C23G 1/14** (2013.01 - EP KR); **C23G 3/04** (2013.01 - EP KR); **C23G 5/00** (2013.01 - KR); **B08B 2209/005** (2013.01 - EP)

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)

**EP 3862466 A1 20210811; EP 3862466 A4 20220727;** CN 112805409 A 20210514; JP 7157168 B2 20221019; JP WO2020071224 A1 20210902; KR 20210053949 A 20210512; WO 2020071224 A1 20200409

DOCDB simple family (application)

**EP 19868663 A 20190926;** CN 201980065539 A 20190926; JP 2019037792 W 20190926; JP 2020550347 A 20190926; KR 20217009594 A 20190926