

Title (en)

Method and apparatus for quenching steel pipes.

Title (de)

Verfahren und Vorrichtung zum Abschrecken von Stahlrohren.

Title (fr)

Procédé et appareil pour tremper des tubes en acier.

Publication

EP 0086988 A1 19830831 (EN)

Application

EP 83100777 A 19830127

Priority

US 34675582 A 19820208

Abstract (en)

An apparatus is provided for quenching a hollow-bodied piece of steel with an opening at each end thereof, such as a steel pipe, which comprises exterior quenching means (70) and interior quenching means. The exterior quenching means includes means for directing a cooling medium from a cooling medium source in a substantially circumferential flow pattern around the exterior of a steel pipe. In one embodiment the exterior quenching means includes means for separately directing a cooling medium in a substantially circumferential flow pattern at variable flow rates around the exterior segments of a steel pipe. The flow rate around each pipe segment may be varied with the thickness of the segment. The exterior cooling means may comprise a plurality of deflector plates (141) to achieve the circumferentially directed flow of the cooling medium about the pipe. The interior quenching means includes means for injecting a gas into a cooling medium to insure sufficient turbulence in the cooling medium as it passes through the interior of the pipe so that heat transfer from the pipe to the cooling medium is facilitated.

IPC 1-7

C21D 9/08

IPC 8 full level

C21D 1/18 (2006.01); **C21D 1/62** (2006.01); **C21D 9/08** (2006.01)

CPC (source: EP)

C21D 1/62 (2013.01); **C21D 9/085** (2013.01)

Citation (search report)

- [X] FR 1204662 A 19600127 - CREUSOT FORGES ATELIERS
- [X] FR 1381458 A 19641214
- [X] DE 2703852 B2 19791004
- [X] GB 1341255 A 19731219 - KLOECKNER WERKE AG
- [A] US 2888374 A 19590526 - FRITZ HEINENBERG
- [AD] US 3212766 A 19651019 - FRITZ HEINENBERG, et al
- [AD] US 3623716 A 19711130 - FRITSCH WERNER, et al
- [AD] US 3877685 A 19750415 - FRANCESCHINA LOUIS E, et al
- [AD] US 4116716 A 19780926 - ITOH KAMETARO, et al
- [X] DE-B-p24770D VIa/18c (C. HAMACHER)

Cited by

EP0663451A1; CN113293274A; CN117965853A; EP0345205A1; DE3818878A1; US4834344A

Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

EP 0086988 A1 19830831; EP 0086988 B1 19870408; CA 1234338 A 19880322; DE 3370823 D1 19870514; DE 86988 T1 19840202; JP S58147513 A 19830902

DOCDB simple family (application)

EP 83100777 A 19830127; CA 420223 A 19830125; DE 3370823 T 19830127; DE 83100777 T 19830127; JP 1823283 A 19830208