

Title (en)

REDUCED VIBRATION TUBE BUNDLE SUPPORT DEVICE

Title (de)

ROHRBÜNDELTRAGVORRICHTUNG MIT REDUZIERTEN SCHWINGUNGEN

Title (fr)

DISPOSITIF SUPPORT DE FAISCEAU TUBULAIRE À RÉDUCTION DES VIBRATIONS

Publication

**EP 2281168 A1 20110209 (EN)**

Application

**EP 09725482 A 20090327**

Priority

- US 2009001886 W 20090327
- US 7811608 A 20080327

Abstract (en)

[origin: WO2009120350A1] A tube bundle (10) for a shell and tube type heat exchanger has a support system that allows simple fabrication and provides a secure support of the tubes (12) to mitigate vibration and problems associated with vibration. The tube bundle is composed of tubes that are supported by spaced cages (22) having support rods (26) sized to allow ample clearance with the adjacent tubes and configured in alternating positions and alternating orientations so that sets of four widely spaced cages form a complete support network. To ensure secure support to avoid vibration, sets of support stakes (30) are inserted adjacent to (or in between) the cages to bias the tubes against the support rods of the cages. By this, fabrication is simplified, but a secure support system is maintained.

IPC 8 full level

**F28F 9/013** (2006.01)

CPC (source: EP US)

**F28F 9/0132** (2013.01 - EP US); **F28F 2265/30** (2013.01 - EP US)

Citation (search report)

See references of WO 2009120350A1

Designated contracting state (EPC)

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Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

**WO 2009120350 A1 20091001**; CA 2717516 A1 20091001; EP 2281168 A1 20110209; JP 2011515648 A 20110519; KR 20100139094 A 20101231; US 2009242181 A1 20091001

DOCDB simple family (application)

**US 2009001886 W 20090327**; CA 2717516 A 20090327; EP 09725482 A 20090327; JP 2011501811 A 20090327; KR 20107024013 A 20090327; US 7811608 A 20080327