

Title (en)

CIRCULATION PIPING SYSTEM AND SYSTEM FOR SUPPLYING WATER CONTAINING CARBON DIOXIDE

Title (de)

ZIRKULIERENDES ROHRLEITUNGSSYSTEM UND SYSTEM ZUM ZUFÜHREN VON WASSER MIT KOHLENDIOXID

Title (fr)

SYSTÈME DE CANALISATION DE CIRCULATION ET SYSTÈME DE DISTRIBUTION D'EAU CONTENANT DU DIOXYDE DE CARBONE

Publication

**EP 3415836 A4 20190227 (EN)**

Application

**EP 16889927 A 20161129**

Priority

- JP 2016024853 A 20160212
- JP 2016085332 W 20161129

Abstract (en)

[origin: EP3415836A1] A water heater that is a circulation pipe system includes a heat exchanger configured to heat water, a hot water storage tank configured to store the heated water, a circulation pipe through which water is circulated between the heat exchanger and the hot water storage tank, a hot water supply pipe through which the water stored in the hot water storage tank is supplied, a bubble injection device provided at an upstream side of a flow path communicating with the heat exchanger in the circulation pipe and configured to inject bubbles into the water, a carbon dioxide supply device connected to the bubble injection device and configured to supply bubbles containing carbon dioxide, and a controller. The controller is configured to control the bubble injection device, the heat exchanger, and the carbon dioxide supply device such that the bubbles containing the carbon dioxide are intermittently injected into the water.

IPC 8 full level

**F24H 1/18** (2006.01); **F24D 17/02** (2006.01); **F24D 19/00** (2006.01); **F24H 9/00** (2006.01); **F28G 9/00** (2006.01)

CPC (source: EP US)

**F24D 17/02** (2013.01 - EP); **F24D 19/0092** (2013.01 - EP); **F24D 19/1006** (2013.01 - EP US); **F28G 9/00** (2013.01 - EP)

Citation (search report)

- [XY] WO 2010067454 A1 20100617 - MITSUBISHI ELECTRIC CORP [JP], et al
- [XDA] JP 2010223525 A 20101007 - OSAKA GAS CO LTD
- [XA] JP H04241860 A 19920828 - MATSUSHITA ELECTRIC WORKS LTD
- [XA] JP H05200091 A 19930810 - MATSUSHITA ELECTRIC WORKS LTD
- [A] JP H0671149 A 19940315 - MATSUSHITA ELECTRIC WORKS LTD
- [Y] JP H0576718 A 19930330 - MATSUSHITA ELECTRIC WORKS LTD
- [YA] JP H06307712 A 19941101 - MATSUSHITA ELECTRIC WORKS LTD
- [A] WO 2015052840 A1 20150416 - MITSUBISHI ELECTRIC CORP [JP]
- See references of WO 2017138226A1

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)

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DOCDB simple family (application)

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