Title (en)

METHOD AND DEVICES FOR CONTACTLESSLY AND DIRECTLY HEATING LIQUIDS AND SOLIDS

Title (de)

VERFAHREN UND VORRICHTUNGEN ZUR KONTAKTLOSEN DIREKTEN ERWÄRMUNG VON FLÜSSIGKEITEN UND FESTSTOFFEN

Title (fr)

PROCÉDÉ ET DISPOSITIF SERVANT À RÉCHAUFFER DIRECTEMENT SANS CONTACT DES LIQUIDES ET DES MATIÈRES SOLIDES

Publication

**EP 3610699 A1 20200219 (DE)**

Application

**EP 18717582 A 20180410**

Priority

- DE 102017003452 A 20170410
- EP 2018059210 W 20180410

Abstract (en)

[origin: WO2018189209A1] The invention relates to a device for contactlessly and directly heating and/or controlling the temperature of liquids and/or solids in a controlled manner, said device being characterized by: - an electromagnetic power generator unit, comprising at least one high-frequency voltage generator, at least one high-frequency alternating current generator, at least one electromagnetic power generator consisting of at least one coil of an electric conductor and at least one ferrite, and at least one functional unit comprising at least one electromagnetic receiver, at least one regulating and control unit and/or at least one magnet- or electromagnet-based drive device, wherein the at least one ferrite consists of a base and at least one projection, and the electric conductor is wound around at least one part of the base and/or the at least one projection at least once, thereby forming a coil, and the electric conductor is coupled into at least one oscillating circuit with an oscillating circuit frequency between 10 Hz and 1 MHz of the at least one high-frequency alternating current generator, thereby generating an electromagnetic energy field in the region of the coil, said energy field being bundled by the at least one ferrite and being emitted in a power output region which is located opposite the base and, if more than one projection is present, opposite the base and in a region between the projections; and - an electromagnetic energy absorber element, comprising at least one electromagnetic energy absorber, at least one heat transfer element, and at least one functional unit, comprising at least one temperature measuring device, a high-frequency transmitter, a high-frequency induction coil, a magnet, a magnetizable material and/or a magnetizable coil, and/or a sensor for determining physical states, in particular temperature, pressure, and speed, wherein the electromagnetic energy absorber element is located in the electromagnetic near field and/or far field of the electromagnetic power generator of the electromagnetic power generator unit, and the planes of the electromagnetic power output region and the electromagnetic energy absorber are surface-parallel.

IPC 8 full level

**H01F 38/14** (2006.01); **H05B 6/06** (2006.01); **H05B 6/10** (2006.01); **H05B 6/12** (2006.01); **H05B 6/36** (2006.01)

CPC (source: EP)

**H01F 38/14** (2013.01); **H05B 6/06** (2013.01); **H05B 6/105** (2013.01); **H05B 6/1236** (2013.01); **H05B 6/365** (2013.01)

Citation (search report)

See references of WO 2018189209A1

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)

**WO 2018189209 A1 20181018**; EP 3610699 A1 20200219

DOCDB simple family (application)

**EP 2018059210 W 20180410**; EP 18717582 A 20180410