

Title (en)  
IN-VEHICLE VOLTAGE-TRANSFORMING DEVICE

Title (de)  
FAHRZEUGINTERNE SPANNUNGSUMWANDLUNGSVORRICHTUNG

Title (fr)  
DISPOSITIF DE TRANSFORMATION DE TENSION EMBARQUÉ

Publication  
**EP 3171372 B1 20190320 (EN)**

Application  
**EP 14897848 A 20140717**

Priority  
JP 2014068979 W 20140717

Abstract (en)  
[origin: EP3171372A1] Provided are: a tank configured to contain an iron core, three or more windings, and a plurality of insulating plates and filled with insulation oil; a plurality of spacers each interposed between a winding and an insulating plate facing each other to provide a flow path for the insulation oil; a pump configured to cause the insulation oil to flow; and a switching circuit. A part of the spacers have a smaller flow resistance to the insulation oil flowing in one direction than a flow resistance to the insulation oil flowing in another direction opposite to the one direction. Another part of the spacers have a smaller flow resistance to the insulation oil flowing in the other direction than a flow resistance to the insulation oil flowing in the one direction. The pump is configured to cause the insulation oil to flow in the one direction when the part of the windings is incorporated in an electric circuit by the switching circuit, and the pump is configured to cause the insulation oil to flow in the other direction when the other part of the windings is incorporated in the electric circuit by the switching circuit.

IPC 8 full level  
**H01F 27/12** (2006.01); **H01F 29/02** (2006.01); **H01F 30/04** (2006.01)

CPC (source: EP)  
**H01F 27/12** (2013.01); **H01F 29/02** (2013.01)

Cited by  
EP3817512A1; CN114342018A; WO2021083574A1

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

DOCDB simple family (publication)  
**EP 3171372 A1 20170524; EP 3171372 A4 20180404; EP 3171372 B1 20190320**; JP 5766383 B1 20150819; JP WO2016009521 A1 20170427; WO 2016009521 A1 20160121

DOCDB simple family (application)  
**EP 14897848 A 20140717**; JP 2014068979 W 20140717; JP 2015510533 A 20140717