



- (51) **International Patent Classification:** Not classified
- (21) **International Application Number:**
PCT/EP2013/053174
- (22) **International Filing Date:**
18 February 2013 (18.02.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
1202853.6 17 February 2012 (17.02.2012) GB
- (71) **Applicant:** BOMBARDIER TRANSPORTATION GMBH [DE/DE]; Schöneberger Ufer 1, 10785 Berlin (DE).
- (72) **Inventor:** ANDERS, Dominik; Lindenhofstraße 96, 68163 Mannheim (DE).
- (74) **Agent:** BRESSEL UND PARTNER; Potsdamer Platz 10, 10785 Berlin (DE).
- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,

DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(54) **Title:** PROVIDING A VEHICLE WITH ELECTRIC ENERGY USING INDUCTION AND A RECTIFIER

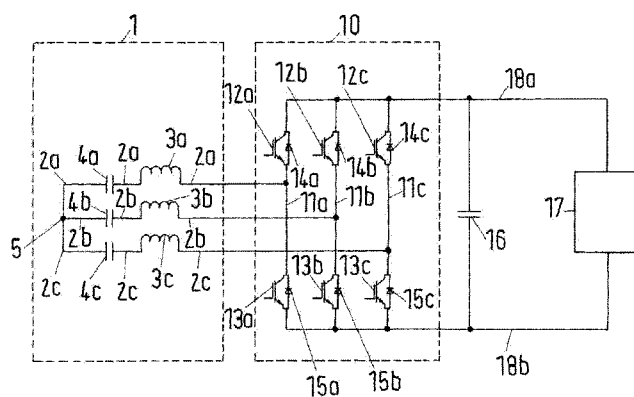


Fig.1

(57) **Abstract:** The invention relates to an arrangement for providing a vehicle, in particular a track bound vehicle and/or a road automobile, with electric energy, wherein • the arrangement comprises a receiving device (1) adapted to receive an alternating electromagnetic field and to produce an alternating electric current by electromagnetic induction, • the receiving device (1) comprises at least one inductance (3) which is formed by an electrically conducting material for producing one phase of the alternating electric current by the electromagnetic induction, • the at least one inductance (3) and optionally at least one further electrical element (4), which is connected to the inductance (3) in order to produce one phase of the alternating electric current, comprise(s) a resonance frequency at which the phase of the alternating electric current is produced if an alternating electromagnetic field of corresponding frequency is received by the receiving device (1), • the inductance (3) is connected to a rectifier (10) for rectifying the alternating electric current and thereby producing a direct electric current, • the rectifier (10) comprises at least one automatically controllable switch (12, 13) which is or - in case of more than one automatically controllable switch (12, 13) - which are arranged in such a manner that closing the switch (12, 13) or closing a plurality of the switches (12, 13) results in a short circuit across the inductance (3) or across two or more of the inductances (3), • the arrangement comprises a control

[Continued on next page]



device which is adapted to control the at least one automatically controllable switch (12, 13) and • the control device is adapted to switch on and off the at least one automatically controllable switch (12, 13) at a frequency which is smaller than the resonance frequency.