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(54) Title: RAILWAY VEHICLE PROVIDED WITH A PANTOGRAPH AND WITH A CONTROL SYSTEM FOR RAISING/ LOWERING SUCH PANTOGRAPH

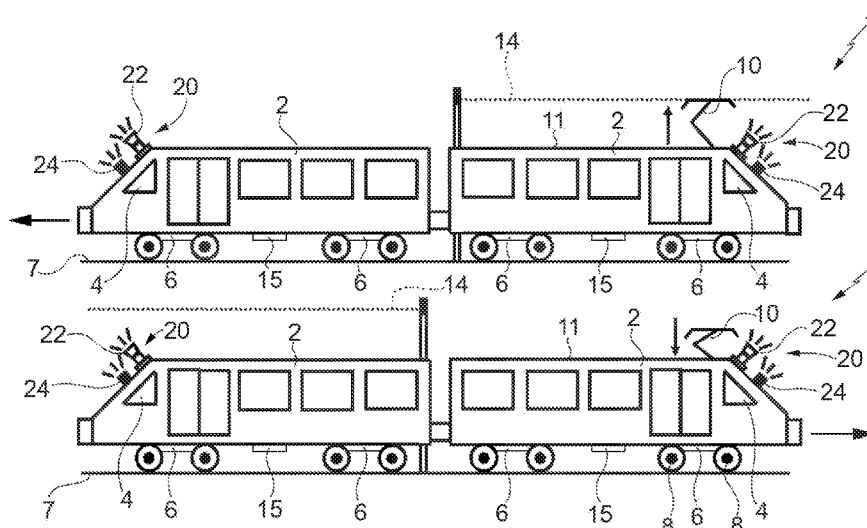


FIG. 1

(57) Abstract: A railway vehicle (1) is provided with a pantograph (10) movable under the action of a moving device (12) between a raised position, in which it is able to cooperate in contact, in use, with a catenary conductor cable for drawing electrical energy, and a lowered position, in which it is lower than the height where, in use, such catenary is provided; the vehicle is provided with a battery pack and a control system (18) for controlling the moving device (12) and therefore lowering/raising the pantograph (10); the control system has a microprocessor control unit configured to control the moving device (12) in response to signals containing information indicative of the actual position of the vehicle (1), and/or indicative of the presence or absence of the conductor cable (14) in the vicinity of the vehicle (1).



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INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 199 40 350 A1 (DEUTSCHE BAHN AG [DE]) 10 May 2001 (2001-05-10)	1
Y	abstract page 2, line 1 - line 8 page 2, line 32 - line 39 page 3, line 64 - line 17 page 3, line 24 - line 35 page 4, line 14 - line 54 page 5, line 4 - line 11 figures 1,2 -----	3-7, 11, 12
A	DE 10 2010 053528 A1 (DIALOGIKA GES FUER ANGEWANDTE INFORMATIK MBH [DE]) 31 May 2012 (2012-05-31) paragraph [0013] - paragraph [0015] page 34 figures 1,2 -----	1-15
Y	A LANDI ET AL: "Hough transform and thermo-vision for monitoring pantograph-catenary system", PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS. PART F, JOURNAL OF RAIL AND RAPID TRANSIT, vol. 220, no. 4, 1 July 2006 (2006-07-01), pages 435-447, XP55339088, GB ISSN: 0954-4097, DOI: 10.1243/0954409JRRT41 page 438, left-hand column, paragraph 3 figure 2 -----	9
A	DE 10 2012 209311 A1 (DEUTSCH ZENTR LUFT & RAUMFAHRT [DE]) 5 December 2013 (2013-12-05) paragraph [0011] - paragraph [0017] paragraph [0022] -----	13-15

INTERNATIONAL SEARCH REPORT

International application No.
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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims;; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-12

Monitoring of overhead lines

2. claims: 13-15

Controlling pantographs based on route map data

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2021/051731

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