Abstract:
Described herein is an electric-propulsion vehicle comprising: a motor-driven front axle assembly (10); and a motor-driven rear axle assembly (20); wherein the above assemblies each comprise: a supporting frame (110), two wheel-suspension units (30), an electric motor (40) for driving the wheels in rotation, a control unit (45) for controlling the aforesaid motor, a differential transmission unit (55) with one or more gear ratios, and a steering device (50) for regulating the angular position of the wheel supports of the aforesaid suspension units with respect to the aforesaid frame; the motor, the suspension units, and the steering device being mounted on the aforesaid supporting frame. The two axle assemblies have altogether corresponding configurations, and constitute in themselves independent modules, already pre-assembled in their operating configuration.
### INTERNATIONAL SEARCH REPORT

**PCT/IB2015/050461**

**A. CLASSIFICATION OF SUBJECT MATTER**

INV. B60K1/02 B60K7/00 B60G3/18 B60K17/354 B60K17/34

ADD.

According to International Patent Classification (IPC) into both national classification and IPC.

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

B60K B60G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>X</td>
<td>wo 2009/017533 AI (PORTEON ELECTRIC VEHICLES INC [US]; PALATOV DENNIS [US]) 5 February 2009 (2009-02-05) figures 1, 2, 3, 5 paragraph [0017]</td>
<td>1-4, 13</td>
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<td>A</td>
<td>US 3 053 547 A (VERNON OSBORNE CHARLES) 11 September 1962 (1962-09-11) figure 1 column 3, line 50 - line 67</td>
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</table>

**X** Further documents are listed in the continuation of Box C. **X** See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance.

“E” earlier application or patent but published on or after the international filing date.

“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified).

“O” document referring to an oral disclosure, use, exhibition or other means.

“P” document published prior to the international filing date but later than the priority date claimed.

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention.

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone.

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

“A” document member of the same patent family.

Date of the actual completion of the international search: 21 May 2015

Date of mailing of the international search report: 07/08/2015

Name and mailing address of the ISA:

European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk

Tel. (+31-70) 340-2040,

Fax: (+31-70) 340-3016

Authorized officer: Waldsteijn, Martin
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<tr>
<td>A</td>
<td>EP 1 950 072 AI (MAZDA MOTOR [JP]) 30 July 2008 (2008-07-30) figures 1, 6</td>
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<tr>
<td>A</td>
<td>US 2012/326410 AI (WEST VAUGHN E D [US]) ET AL 27 December 2012 (2012-12-27) figure 1</td>
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</table>
**INTERNATIONAL SEARCH REPORT**

**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. [X] 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.:

   1–4, 13

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

1. claims: 1-4, 13
   Wheel suspension of a traction module

2. claims: 5-12
   Optimization of a frame structure in order to arrange traction components of a traction module

3. claims: 14-16
   Optimization of the electric motor

4. claims: 17-20
   Battery (location and electric) management
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<th>Publication date</th>
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<td>WO 2009017533 A1</td>
<td>05-02-2009</td>
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<td>US 2006015236 A1</td>
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