Abstract: An apparatus coupler, apparatus and method for indicating whether a coupler of a locomotive is in a coupled or uncoupled state is provided. The apparatus comprising: a sensor positioned on a portion of the coupler, wherein the sensor provides a real-time signal indicative of either a coupled or an uncoupled state of a coupler, wherein the signal is transmitted wirelessly by a transmitter in operable communication with the sensor. The method comprising: providing a signal indicative of the presence or proximity of a second coupler to the first coupler, the signal being provided by a sensor configured to provide the signal as the state of the coupler has changed; transmitting the signal wirelessly to a controller; processing the signal with a control algorithm resident upon the controller; and providing visually perceivable indication of the position of the coupler.

Title: COUPLER, APPARATUS, SYSTEM AND METHOD FOR DETERMINING WHETHER A TRAIN ENGINE IS COUPLED TO A RAIL CAR
Declarations under Rule 4.17:
— as to applicant’s entitlement to apply for and be granted a patent (Rule 4.17(U))
— as to the applicant’s entitlement to claim the priority of the earlier application (Rule 4.17(Hi))

Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
20 September 2007

For two-letter codes and other abbreviations, refer to the “Guidance Notes on Codes and Abbreviations” appearing at the beginning of each regular issue of the PCT Gazette.
A. CLASSIFICATION OF SUBJECT MATTER

INV. B61L15/02 B61G7/14

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

B. RELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B61L B616

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>X</td>
<td>DE 31 12 322 A1 (LICENTIA GMBH [DE]) 7 October 1982 (1982-10-07) the whole document</td>
<td>1,10,17, 18,23</td>
</tr>
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</table>

Further documents are listed in the continuation of Box C

See patent family annex

Date of the actual completion of the international search 18 July 2007

Date of mailing of the international search report 27/07/2007

Name and mailing address of the ISA/

European Patent Office, P B 5818 Patentlaan 2
NL- 2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx 31651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Janhsen, Axel

Form PCT/ISA/210 (second sheet) (April 2005)
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<tr>
<td>A</td>
<td>US 3 905 012 A (VRABEL JOSEPH D ET AL) 9 September 1975 (1975-09-09)</td>
<td>1-5, 10-12, 17-21, 23,24</td>
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<td>US 5 235 849 A (EGERTON GARY W [US]) 17 August 1993 (1993-08-17)</td>
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<td>column 2, line 5 – column 2, line 24; figures 2-4</td>
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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).

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 fee, this Authority did not invite payment of any additional fee.

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.

☒ 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: 1-5,10-12,17,18,20,21,23,24

Inductive proximity sensor

2. claims: 1,6,7,10,13,14,17,18,22,23,25

Strain sensor

3. claims: 1,8-10,15-18,23,26

Magnetic circuit sensor

4. claims: 17-19,23,27

Video camera with image processing
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<tr>
<td>DE 3112322</td>
<td>A 07-10-1982</td>
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