



## SUPPLEMENTARY PARTIAL EUROPEAN SEARCH REPORT

under Rule 62a and/or 63 of the European Patent Convention. This report shall be considered, for the purposes of subsequent proceedings, as the European search report

Application number:  
EP 21 87 90 15

### Classification of the application (IPC):

**B61B 1/00, B61L 23/34, B61L 15/00, B61L 17/02, B61L 27/20, B61L 27/40, B61C 17/12**

### Technical fields searched (IPC):

B61L

### DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	CN 110962888 A (UNIV CENTRAL SOUTH) 07 April 2020 (2020-04-07) * examples 1 and 2 *	1-15
A	EP 3473523 A1 (TRAFFIC CONTROL TECH CO LTD [CN]) 24 April 2019 (2019-04-24) * figures 1 and 2; paragraphs [0038] - [0066] *	1-15
A	WO 2019227674 A1 (BEIJING NATIONAL RAILWAY RES & DESIGN INSTITUTE OF SIGNAL & COMMUNICAT) 05 December 2019 (2019-12-05) * figures 1 and 2; and corresponding parts of the description *	1-15
A	EP 3102474 B1 (SIEMENS AG [DE]) 14 February 2018 (2018-02-14) * figure; paragraphs [0023] - [0032] *	1-15

### INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R. 62a, 63) has been carried out.

Claim(s) completely searchable:

Claim(s) searched incompletely: 1-15

Claim(s) not searched:

#### Reason for the limitation of the search:

**[0001]** 1.

**[0002]** The present application does not meet the requirements of Article 84 EPC for the following reasons: 1.1 Independent process claim 1 attempts to define an ad-hoc network-based train dynamic marshalling and unmarshalling method.

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search The Hague	Date of completion of the search 03 January 2024	Examiner Plützer, Stefan
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### CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone	P: intermediate document
Y: particularly relevant if combined with another document of the same category	T: theory or principle underlying the invention
A: technological background	E: earlier patent document, but published on, or after the filing date
O: non-written disclosure	D: document cited in the application
& : member of the same patent family, corresponding document	L: document cited for other reasons

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**[0003]** Said claim neither provides information on how an ad-hoc network is established or used within the claimed method, nor provides information on the entities which are part of the ad-hoc network.

**[0004]** Therefore, claim 1 is not clear in the sense of Article 84 EPC.

**[0005]** 1.2 The method as defined by claim 1 comprises train dynamic marshalling, and train dynamic unmarshalling, whereby the train dynamic unmarshalling comprises first unmarshalling, and second unmarshalling, whereby the first unmarshalling comprises receiving, by the two train sets in a group, an unmarshalling command during operation, and unmarshalling the two train sets if a tracking distance between the two train sets is greater than a first unmarshalling threshold and the rear train set receives an LU code, and the second unmarshalling comprises when the rear train set has a speed of 0 during operation of the two train sets in the group, unmarshalling the two train sets if the unmarshalling command is received.

**[0006]** It is not apparent from the claim's wording in which way first and second unmarshalling can be performed within the same process, since unmarshalling can be preformed either by the first or the second unmarshalling.

**[0007]** Hence, claim 1 is not clear in the sense of Article 84 EPC.

**[0008]** 1.3 As regards the the terms "LU code" and "U code" present in claim 1, the applicant provided in the letter of reply to the invitation pursuant to Rule 63 (1) EPC, dated 25.10.2023, the following definitions: LU code: A train is permitted to run at the required speed with attention and the locomotive signalling machine displays a half-green, half-yellow light.

**[0009]** U code: A train is requested to run at attention and the locomotive signalling machine displays a yellow light.

**[0010]** It is noted that "running with/at attention" is a term without well-recognised meaning.

**[0011]** Furthermore, the wording of claim 1 leaves the reader in doubt as to the technical interrelation of the U code section, the rear train set and and the front train set. In particular, it is not apparent why a train set entering an arbitrary U code section should verify IDs with a front train set.

**[0012]** Finally, it is not apparent from claim 1 which restrictions the applicant intends to introduce in this context by "group".

**[0013]** Consequently, claim 1 is not clear in the sense of Article 84 EPC.

**[0014]** 1.4 The same objections are raised for the corresponding structural features of independent product claim 9.

**[0015]** 2.

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search  
The Hague

Date of completion of the search  
03 January 2024

Examiner  
Plützer, Stefan

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**[0016]** Since it is not unambiguously apparent from the application documents in which way said objections could be overcome, the Search was restricted to those features of the claims, which are clear in the sense of Article 84 EPC.

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search The Hague	Date of completion of the search 03 January 2024	Examiner Plützer, Stefan
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**ANNEX TO SUPPLEMENTARY PARTIAL  
EUROPEAN SEARCH REPORT**

 Application number:  
EP 21 87 90 15

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on 03-01-2024.  
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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
CN 110962888	A	07-04-2020	NONE	
EP 3473523	A1	24-04-2019	CN 109664923 A EP 3473523 A1 US 2019111953 A1	23-04-2019 24-04-2019 18-04-2019
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