

PATENT COOPERATION TREATY

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INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**
(PCT Rule 43*bis*.1)

To:

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Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
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FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2018/052441

International filing date (day/month/year)
31.01.2018

Priority date (day/month/year)
02.02.2017

International Patent Classification (IPC) or both national classification and IPC
INV. B60T17/22

Applicant
OVINTO CVBA

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of this opinion

see form
PCT/ISA/210

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed.
 - a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-15</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>10-12</u>
	No: Claims	<u>1-9, 13-15</u>
Industrial applicability (IA)	Yes: Claims	<u>1-15</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1 Reference is made to the following documents:
 - D1 US 6 006 868 A (KLINK DOUGLAS D [US]) 28 December 1999 (1999-12-28) cited in the application
 - D2 US 6 170 619 B1 (SHERIFF ALAN V [US] ET AL) 9 January 2001 (2001-01-09)
 - D3 US 2012/046811 A1 (MURPHY WAYNE [US] ET AL) 23 February 2012 (2012-02-23)
- 2 The present application does not meet the criteria of Article 33(3) PCT, because the subject-matter of claim 1 does not involve an inventive step.
 - 2.1 D1 may be regarded as being the prior art closest to the subject-matter of claim 1, and discloses:
 - 2.1.1 Method (*i.e. Apparatus carrying out said method, see abstract*) for monitoring a hand brake (26, 12) of at least one rail wagon, [preferably unpowered: ***implicitly disclosed, because the cars are towed by a locomotive, see col 1, l. 22***] comprising a chassis (***implicitly disclosed, hashed areas in fig. 1***) by means of a monitoring system (***10, Fig. 2, see col. 4, l. 7-12***); said hand brake comprising a hand-operated mechanical device (***wheel 26***), a brake linkage system (20) and at least one brake pad (18); said hand-operated mechanical device (26), said brake linkage system (20) and said at least one brake pad (18) [*being*] mechanically connected (see fig. 1); said monitoring system (10) comprising a detection module (52) and a monitoring module (***see col. 4, from l. 52: "The position signal generated by monitoring apparatus 10 may be used to control the operation of brake system 12 or to merely monitor the status of the brake system"***) said detection module comprising at least one detector element (***see col. 4, from l. 32: "Transmitter and receiver unit 52 is preferably an ultrasonic type device but may also include other types of position or distance sensors such as an optical sensor, acoustic sensor, radar sensor or linear optical sensor having a position sensitive detector"***); said monitoring module comprising a processor (***see col. 4, from l. 49: Controller 54 is preferably a programmable microprocessor but may also include other conventional electronic control devices***), tangible

non-volatile memory (***implicit feature of microprocessor***), instructions on said memory for instructing said processor (***implicit feature of microprocessor***); said method comprising the subsequent steps of:
(a) evaluating a state of said hand brake belonging to said at least one unpowered rail wagon by means of said detection module;
(b) communicating said state to said monitoring module;

wherein said evaluating of said state involves a dislocation (***see col. 4, from I. 32***) of said brake linkage system with respect to a calibration point fixed with respect to the chassis (***hashed area in fig. 1; the benevolent reader of D1 understands, that the position sensor of D1 senses e.g. a dislocation of lever 32 or 36 with respect to some reference that cannot mean anything else than a calibration point fixed to the hashed area, i.e. chassis; this comprises of course information about the state, engaged or disengaged, of the hand brake***), wherein said state is characteristic of at least the hand brake being disengaged,

wherein said detection module (52) further comprises a first detector element (10) fixed with respect to the chassis (hashed area); wherein said first detector element (10) determines said calibration point;

The subject-matter of claim 1 therefore differs from this known method in that:

said detection module (31) further comprises a second detector element (34) fixed with respect to a portion of the brake linkage system (20); in that said evaluating of said state involves determining whether said first (33, 35) and second (34) detector element are within each other's range, thereby detecting that the hand brake (1) is disengaged;

[non limiting feature: and in that preferably at least one of the first (33, 35) and second (34) detector element is releasably attached]

[Generally speaking, the gist of the claimed method, i.e. sensing the state of a hand brake of e.g. a cargo wagon by means of a sensor and e.g. a programmable microprocessor or microcontroller is disclosed in D1. Even when disregarding the presence of the device features of claim 1 in prior art D1, these would appear to be obvious to the skilled person and therefore would not confer an inventive step.]

The problem to be solved by the present invention may therefore be regarded as finding a suitable alternative for sensor 10.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

D1 mentions on col. 4, l. 35-39:

"Transmitter and receiver unit 52 is preferably an ultrasonic type device but may also include other types of position or distance sensors such as an optical sensor, acoustic sensor, radar sensor or linear optical sensor having a position sensitive detector."

D1 mentions on col. 5, l. 21-25:

".. although the preferred monitoring apparatus 10 uses transmitted and received signals to sense the position of a monitored component of brake system 12, it could also use mechanical-type position sensors"

Hence, D1 gives a clear incentive to the skilled person to research for further suitable alternatives for the ultrasonic or radar sensor 10. The solution of the use of a first and second detector element (like reed switches or hall sensors in combination with a magnet) as defined in claim 1 is considered to be a well known alternative. D2 shows for example in figures 5 the use of a Hall sensor 35 and magnet 77 in order to detect a reference position of a drive gear. D2 therefore teaches the skilled person, that these types of sensors are well suitable to monitor a hand brake position in a rail wagon.

The skilled person would therefore use his common knowledge, or the teaching of D2, to apply first and second detector elements as an alternative to sensor 10 of D1 and arrive in an obvious way to the subject matter of claim 1.

Hence, associated device claim 13 and 14 and the individual parts of the kit of claim 15 are also lack inventive step in view of D1 and common general knowledge, see corresponding features in the above analysis.

- 3 Dependent claims 2-9 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step. They relate to well known alternatives to measure a position of handbrake related items, or indicate design parameters, like distance between detector

elements, that can easily be determined by routine experiments. Sending parking brake status data to an external station and/or satellite is known per se from D3.

- 4 The combination of the features of dependent claims 10, as well as claims 11 and 12, in as far as they depend on claim 10, is neither known from, nor rendered obvious by, the available prior art. The reasons are as follows: the prior art does not suggest to arrange a third detector element as specifically defined in claim 10, in order to provide a more robust position detection of the hand brake.

Re Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D2 and D3 is not mentioned in the description, nor is this document identified therein.

Re Item VIII

Certain observations on the international application

Claim 1, line 7 should read "... brake pad (3) **being** mechanically connected;..."

The application does not meet the requirements of Article 6 PCT, because claims 11 and 12 are not clear, in as far as they do not depend on claim 10 and in as far as these claims refer to items as "...said ... third detector" element, that only appears in claim 10. To remedy this deficiency, claims 11 and 12 should be made dependent on claim 10.